THE BUILDER

INCORPORATING

"ARCHITECTURE" and "THE BRITISH ARCHITECT"

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THIS WEEK'S NEWS

PAGE

AT the Royal Institute of British Architects on November 9, Mr. Michael Waterhouse, the President, followed his presidential address by unveiling a portrait by James Gunn of Sir Lancelot Keay, K.B.E., Past-President of the Institute (1946-8). Mr. Waterhouse earlier unveiled a portrait bust by Charles Wheeler, R.A., of Mr. G. Grey Wornum, F.R.I.B.A. The bust is the gift of Mr. Edward Maufe, R.A. 555

A SCHEME is on foot to rebuild all the Courts of Law in the City of Manchester in one group of buildings, which would be the subject of a competition for designs. The cost of erecting the buildings, on the basis of prices prevailing in 1939, has been estimated to be in the region of £1,100,000. 567

IT has been estimated that the operations of plumbing and levelling while bricklaying occupy about 15 per cent. of the bricklayer's time. In an article in this issue, Mr. J. F. Eden, B.Sc., A.M.I.Mech.E., of the Chief Scientific Adviser's Division, Ministry of Works, describes how, by setting up plumbed profiles at the corners before the brickwork is commenced, much of this time can be saved. 568

THE first Public Health and Municipal Engineering Exhibition to be held for ten years is to be opened by Mr. Aneurin Bevan, M.P., Minister of Health, at Olympia on Monday, November 15. An illustrated review of the principal exhibits is given. 571

THE artificial state developed by subsidies for housing and the effect subsidies have on true housing costs were described by Dr. A. H. Marshall, City Treasurer of Coventry, when he spoke on "The £ s. d. of Housing" at the Institute of Housing Conference at Brighton. 578

MOTORWAYS AT LAST

THE long continued efforts of the British Road Federation to secure a system of specially designed roads for motor traffic seem to be drawing to a close with the publication of the special Roads Bill by the Ministry of Transport and supported by other Departments. Two years ago it was indicated that such a Bill was contemplated, but in the numerous and varied activities of the Government it looked as if it had been lost sight of; however, it is at last on the table, and, with every prospect of its getting through Parliament, progress can be anticipated.

Recently the British Road Federation has issued three pamphlets,* "Basic Road Statistics," "The Case for Motorways," and "Economics of Motorways," a Report prepared in conjunction with the Institution of Highway Engineers and the Society of Motor Manufacturers and Traders. Only this last gives its information in a form definitely supporting the programme of motorways from the aspect of their construction as a financially sound undertaking.

The Government estimate of the cost of such roads, given as £150,000 per mile, may strike one as excessive, and it is hard to believe that with the present facilities for acquisition and structural methods, an able engineer could not bring this figure down by some 20 or 30 per cent. At the figure mentioned, the proposal is for 1,000 miles in a ten-year programme, which would mean an expenditure of fifteen millions per annum. Even this amount would be justified by the calculations given in the Report which we propose to summarise hereunder. The main drawback would be that it would take some three years to complete the provision of a sufficient length of motor road to secure the major proportion of the traffic it aims at catering for.

In its estimate of the amount of traffic which would be influenced by the first 200 miles of motorway, the Report cites an analysis of the traffic on Road A.5 at a point about eight miles north-west of Dunstable. As by far the most important economic factor, heavy and light goods vehicles only are dealt with, numbering 2,288 and 1,458 per day respectively. After reduction to eliminate local traffic and a subsequent increase to include transport on other routes that would be secured, the conclusion is reached that there would be a saving in running costs of at least £15,000 per mile per annum. This is a conservative estimate, and does not take into consideration various factors that might have been included. From this, £1,000 may be deducted for upkeep of the road, though this would be to a large extent balanced by savings on existing routes relieved of this heavy traffic. There would also be a credit for the saving of time in transit both for the heavy goods traffic and that for passengers in motor cars, coaches, etc., which, it is suggested, might be as much as £60,000 per mile per annum, though this is attached to the implication that motorways would extend into the built-up areas—a costly addition to the programme.

To secure the best economic results the standard speed on a motorway should be from 40 to 50 miles per hour and such a road should be designed to provide safe and comfortable driving conditions at this speed. It should not normally accept any traffic other than motor vehicles capable of this speed, though the proposed Bill seems to indicate possible variations to this principle in special circumstances. It is obvious that access must be limited to such traffic as can use it under the above conditions, that it must pass over or under all minor roads and that those connected with it must do so in one of the forms recognised by the Town Planner as safe and convenient. The up and down routes would be separate 22-ft. roads with an intermediate strip, sufficient margins and suitable grading to afford visibility up to a distance of 750 ft. The maximum grade suggested is 1 in 30, but in hilly country it may be increased to 1 in 20. Further details as to construction are included in the Report.

Throughout the advocacy of the motorways the importance of the aid they would offer to all industries employing heavy transport, such as building and engineering, is emphasised, and it is satisfactory to know that there is economic justification for their construction over and above the considerations of safety, convenience and amenity. It is submitted that there is no case for questioning the imperative need for prompt action: the lack of an objective approach to these matters in the past has saddled industry with a heavy burden which has to-day become a severe handicap not

* Published (price 1s. each) by the British Road Federation, 4a, Bloomsbury-square, London, W.C.1.

only in dealing with our home problems but also to successful competition in the world markets, on which our own standard of living depends. We cannot afford inefficient communications, and though the construction of an adequate system of motorways will not be a complete panacea, it will provide the greatest return in the near future from an expenditure of national effort and resources. In this lies the justification for motorways being accorded the highest priority for all major schemes of road development.

PRODUCTION AND THE T.U.C.

A REPORT which systematically examines and makes recommendations on the ways in which Trade Unions can equip themselves and contribute to increasing industrial productivity has been published by the Trades Union Congress. It is to be presented to a special Conference of Trade Unions Executive Committees in London next week. Some of the most difficult problems a Union can tackle are dealt with in the Report, as, for instance, restrictive practices and the transfer of under-employed workers.

Since the General Council of the T.U.C. submitted its interim Report on the economic situation last January, the need to increase productivity in the interests of the workers themselves (as well as of the community) has been discussed on several occasions, the last of which was at the Trades Union Congress in September. The General Council assumes that there is common agreement in the movement on the need for higher productivity, and the Conference next week will discuss how the level can be raised and the ways and means whereby production can be achieved not only in maximum volume but also with maximum efficiency.

Three main aspects of the problem are discussed in the Report, namely: how best to make known at workshop level the facts of the situation; how to promote adequate training for joint consultation and continued participation in the management of the nationalised industries; and what direct steps it could take to deal with the detailed technical problems involved in attaining increased productivity. The T.U.C. has decided to convene separate Conferences of each of the Federations of Trades Unions and similar bodies to study, with representatives of the Council, the precise problems of each industry.

Time has not permitted a close study of the Report, much of which deals—as it inevitably must deal—with the obvious, as, for instance, focusing attention on shortages and bottlenecks; organising national or local industrial conferences to be addressed by research scientists and efficiency experts; accelerating the formation of Joint Production Committees; reviewing the system of workplace representatives, and seeking to raise their efficiency by training-within-industry courses or by other means; taking advantage of existing courses in management and technical subjects; consulting the editors of Trades Union journals on the publication of relevant material; and dealing with production questions at conferences of full-time trade union officials in each region.

One naive recommendation is the training of shop stewards in the elements of production and costing, industrial relations, representation of the workers and relation of workers and management. Some Unions have already decided to undertake this work, and the General Council is considering using its own educational centre at Clapham for the purpose. At least in the building industry it has been forgivable to hold the view that some stewards have, in the past, been chosen not because of their ability to assist management to secure better production at less cost, but rather to pile up the overhead charges and "damn the consequences." This may be an entirely mistaken view but it is widely held. And the prevalence of "cost-plus" contracts during the past ten years has made it fatally easy for management to concede even exorbitant demands, the cost of which could be passed on to the consumer. This is not a healthy condition for any industry to find itself in; indeed, it is a cancer which must be eradicated.

It is an interesting speculation as to whether the evils of under-production, the ca'canny policy for which the

This City of Westminster War Memorial Window, in the Chapel of St. Benedict, Westminster Abbey, was unveiled by H.R.H. Princess Margaret on November 7. The window was designed by Hugh Easton. (*See Note.*)

building industry, not for the first time in its history, is blamed, may not be a result of the obsession of trades unions with politics to the exclusion of industrial economics. Can it be that the fear of losing control of their movement at its lower and local levels to shop stewards and area secretaries having Communist sympathies may partly account for the increasingly loud voice of the T.U.C. in declaring the need for more production? This question is asked seriously, not cynically. The need for the Government to take steps to suppress possible sabotage on the part of servants of the State who hold extreme political views indicates an awareness of the dangers of encouraging a fifth column either of Fascists or Communists.

What has all this to do with the problem of underproduction? Simply this: that the cure for industrial evils is to-day being sought through political action, in the nationalisation of the basic industries, rather than through the improvement of relations between all engaged in industry whether working for wages, salaries or profit. This is the basic matter to which next week's Conference must give its attention.

NOTES AND NEWS

The R.I.B.A. Inaugural Meeting.

THE R.I.B.A. Inaugural Meeting was held on Tuesday evening when the Henry Jarvis Hall was packed with those who had come to hear Mr. Michael Waterhouse, the third member of successive generations of his family to hold the office of President, deliver his inaugural address and unveil the portrait of his predecessor, Sir Lancelot Keay. In content, this will not rank with the great Presidential addresses; it is a sign, regrettable no doubt, of the anxious times through which we pass that interest tends to focus on the problems of present and future rather than to take too long a backward glance at the past, even when the vista is adorned with figures so bright as Alfred and Paul Waterhouse. It was at a late stage in his address that the President came to the field of architectural practice, and declared his aim to be to maintain unity in the profession, one in which he can count on the support of all right-minded persons. He also touched briefly on the relations of the architect with his client and his builder, the latter word, he said, amid approval, being one he preferred to the current-day term "contractor." His proposal to deal on a future occasion with the relationship between architect and builder will be welcomed; there are few subjects which at the present time could be more usefully discussed among architects.

Though he has not inherited his father's flashing humour (there were some in the room who recalled Paul Waterhouse's introduction of his own Presidential portrait in 1923 as "this blue-eyed stranger") Mr. Waterhouse impresses as a worker and has a quiet wit which was well in evidence. Some thought his best effort to be that made extempore at the end of the evening when, Mr. James Gunn having been called on to speak and being found missing, the President mildly remarked: "He appears to have gone off." Mr. S. Vvyvian Hicks, the Surveyors' President, and Mr. L. Sylvester Sullivan proposed the vote of thanks in two very good speeches, that of Mr. Sullivan adding much to our knowledge of Alfred Waterhouse, whose pupil he was. The vote of thanks was most cordially carried.

The Arts at the R.I.B.A.

EARLIER in the afternoon the President had unveiled a portrait bust of Mr. Grey Wornum, architect of the R.I.B.A. building, placed in a niche in the wall at the head of the stairs leading to the Jarvis Hall. In bronze, and the work of Charles Wheeler, it is the gift of Mr. Edward Maufe, and is surely as kindly an action by one architect to another as one could wish. The bust, as will be seen from the illustration on page 555, shows Mr. Wornum with his familiar monocle, which would seem to have presented the sculptor with a problem, as this is the first time he has been faced with it. The result will please those who know Mr. Wornum well and ranks with Mr. Wheeler's most happy efforts. The niche in which the bust is placed has been cut from two blocks of Perrycot stone.

The second unveiling, which followed the address, was of James Gunn's portrait of the immediate Past-President. This is also reproduced elsewhere in this issue. In performing the little ceremony, the President spoke in the highest terms of Sir Lancelot Keay's services to the Institute, which Sir Lancelot acknowledged in a delightful speech, in the course of which he declared that he knew the secret of the eventual fate of Presidential portraits and proposed an extension of the Institute building so that there might be more corridor walls to delay his portrait's inevitable fate.

Town Planning Lectures in Netherlands.

SIR LANCELOT KEAY, K.B.E., P-P. R.I.B.A., is now in Holland lecturing for the British Council. His tour ends on November 16. He is talking on the various problems connected with the redevelopment of central urban areas to the Netherlands Institute of Town-planning and the Netherlands Architectural Association. He is also to lecture on the Georgian period of British architecture to architectural students in Delft and to the Netherlands History of Art Association.

Westminster's Memorial Window.

THE war memorial window of the City of Westminster in the Chapel of St. Benedict, Westminster Abbey, was unveiled by H.R.H. Princess Margaret on November 7.

The window depicts St. George of England and St. Michael of Right and Truth, together slaying the Dragon of Evil: St. George with his banner (red cross on white), and St. Michael with archangel's wings and fiery sword. In the lower right-hand light are the badges and ensigns of the Royal Navy, Army, Royal Air Force and Merchant Navy, the badges of the Westminster Dragoons and The Queen's Westminsters, and an emblem representing the Home Guard. In the lower left-hand light are the badges of the Metropolitan Police and National Fire Service, and emblems representing the Civil Defence and Voluntary Services: all surmounted by the coat of arms granted to the City of Westminster in 1601 by Queen Elizabeth, with supporters and crest granted by Queen Victoria. Above, in the tracery light, the Westminster portcullis surrounded by a Crown of Thorns symbolises the sacrifice of the citizens who gave their lives.

The new window, which replaces one destroyed by blast in 1940 commemorating the men of The Queen's Westminsters who fell in the 1914-18 war, was designed by Hugh Easton, and made by him with the help of Robert Hendra and Geoffrey Harper. It was cut and glazed by T. G. and Denis Harris.

The Chapel of St. Benedict, the founder of the Order to which the monks of Westminster belonged, was built in the thirteenth century.

Pink Cowsheds in Kent.

THE innate conservatism of the technical Press is frequently shocked by the uninhibited approach of the popular daily Press to questions dealing with architecture or building generally. Last week's minor "probe" (America's latest gift to the English language!) concerned Pink Cowsheds, and the article started off in this fashion: "'Pink cowsheds? I didn't order them,' said Miss Jessica Albery, middle-aged country planner, yesterday. 'But I do think pink would be a very nice colour. It's cheap, too.'" Out of this comparatively unimportant tit-bit of local country politics a story of some magnitude is woven. The local Member has asked Mr. Silkin such questions as "Why is the Ashford department of the Ministry advising farmers erecting cowsheds to paint them pink?" The article even included a photograph of Miss Albery (looking anything but middle-aged!) and captioned "Architect Jessica Albery, no arty-crafty job ours." The article ended with a statement from the second-in-command of the planning department at Maidstone, who says: "I am sure we have not issued any instructions to paint cowsheds pink—in writing, anyway. The only time we would express any strong views of colours would be if a farmer tried to put dazzle-striped paint on a shed." Which seems fair enough.

It all goes to sustain our frequently-made point that an architectural correspondent would be a very useful addition to every newspaper. Such articles as these may have a political significance to people who are always searching for political significances, but as news value of any sort it appears to amount to nothing at all. Our sympathies are with Miss Albery.

Southampton Borough Architect.

MR. LEON BERGER, A.R.I.B.A., Deputy Borough Architect of Southampton, has been appointed by the Town Planning Committee to fill the position of Borough Architect, vacant by the resignation, in July last, of Mr. Denis Winston, now Professor of Town Planning at Sydney University. He is 40, and a graduate of Liverpool University School of Architecture.

Paddington's Housing.

MR. DENIS LAZDUN, M.B.E., F.R.I.B.A., lately a partner in the firm of Tecton, has been appointed architect for a housing scheme proposed at Bishop's Bridge-road by Paddington Borough Council, and estimated to cost £3,500,000. The project involves 1,700 flats and will be spread over 15 years.

Professional Announcements.

MR. CYRIL SWEETT, F.R.I.C.S., chartered quantity surveyor, has opened an office in Dorset at 7, Church-street, Wimborne. This office will be managed by Mr. S. D. Mattock, A.R.I.C.S., and copies of catalogues will be appreciated.

MR. HERBERT THEARLE has resigned his

THE ANMERCOSA BUILDING, JOHANNESBURG. SIR JOHN BURNET, TAIT AND LORNE, FF.R.I.B.A., ARCHITECTS. (*See facing page.*)

post on the staff of the Liverpool University School of Architecture, but will continue in private practice which, as hitherto, will be carried on from 66, Rodney-street, Liverpool 1.

MR. L. W. A. T. DRAKE, MR. R. T. F. SKINNER, MR. B. LUBETKIN and MR. DENYS LASDUN, formerly practising together as "Tecton" at 29, Sackville-street, Piccadilly, London, W.1, give notice that they have dissolved partnership as from November 8, 1948.

FROM "THE BUILDER" OF 1848

Saturday, November 11, 1848.

THE ELECTRIC LIGHT.—When we mentioned Messrs. Staite and Petrie's electrical light three weeks ago, on the report of others, and what the patentees proposed to effect by it, we remarked that if they could produce a *steady and sustained* light they had accomplished what had heretofore been the preventive to the substitution of galvanism for gas. Since then we have attended a private exhibition of the invention, and heard what Mr. Staite had to say upon the subject himself. . . . For various purposes the light was extinguished every eight or ten minutes during the evening, and there seemed to be a necessity for adjustment and for changing the carbon at the poles of the circuit, of which nothing was said in the inventor's address. We do not raise this doubt in a captious spirit, or with any desire to underrate the invention: when all that is asserted in this case can be effected, an immense advance will have been made in the science of lighting—a science yet in its infancy.

COMING EVENTS

Monday, November 15.

BIRMINGHAM ASSOCIATION OF BUILDING TRADES EMPLOYERS.—Dinner. Speakers, the Rt. Hon. C. W. Key, M.P., Minister of Works, and Mr. F. M. Sleeman. Grand Hotel, Birmingham. 6.30 p.m.

TOWN AND COUNTRY PLANNING ASSOCIATION.—"The Central Land Board's Policy," by Sir Malcolm Eve, K.C. Institution of Civil Engineers, Great George-st., S.W.1. 6.15 p.m.

PUBLIC HEALTH AND MUNICIPAL ENGINEERING CONGRESS AND EXHIBITION.—Opening by Mr. Aneurin Bevan, M.P. Olympia. 12 noon. (Until November 20. 10.30 a.m.—6 p.m.).

TOWN AND COUNTRY PLANNING ASSOCIATION.—Hartlepool's Planning Exhibition. Planning Centre, 28, King-st., W.C.2. 10 a.m. to 5 p.m. Mondays to Fridays until November 30.

THE INSTITUTION OF SANITARY ENGINEERS.—"Recent Developments in the Treatment of Industrial Effluents," by Mr. B. A. Southgate, B.A., F.R.I.C. Special session at Public Health and Municipal Engineering Congress, Olympia. 3 p.m.

THE INSTITUTE OF TRANSPORT.—"Progress Towards Integration in Transport," by Sir Cyril Hurcomb, G.C.B., K.B.E. R.I.B.A., 66, Portland-pl., W.1. 5.30 p.m.

Tuesday, November 16.

SOCIETY OF CHEMICAL INDUSTRY.—"Leo Hendrick Baekeland—and the Development of Phenolic Plastics," by Professor James Kendall, M.A. Institution of Mechanical Engineers, Storey's Gate, S.W.1. 5.30 p.m.

Wednesday, November 17.

THE ROYAL INSTITUTION OF CHARTERED SURVEYORS.—Discussion on Town and Country Planning Act, 1947. Speaker, Mr. C. P. Bowyer. 12, Great George-st., S.W.1. 5.30 p.m.

THE REINFORCED CONCRETE ASSOCIATION.—"Load Bearing Reinforced Concrete Walls and their use in Multi-Storey Domestic Buildings," by Mr. A. E. Seddon, M.Sc., A.M.I.Struct.E. Caxton Hall, Caxton-st., S.W.1. 6 p.m.

Thursday, November 18.

THE INSTITUTE OF WELDING (North London Branch).—"Welding in Constructional Engineering," by Mr. O. Bondy, A.M.I.C.E. Polytechnic, Regent-st. 7.30 p.m.

SOCIETY OF CHEMICAL INDUSTRY.—"Plasters and Wall Finishes," by Mr. J. S. Cothliff. Gas Industry House, 1, Grosvenor-pl., S.W.1. 6 p.m.

DESIGN AND INDUSTRIES' ASSOCIATION.—"Danish Modern Design," by Mr. F. R. Yerbury, Hon. A.R.I.B.A. Annual luncheon. Frascati's Restaurant, New Oxford-st. 12.45 p.m.

LIVERPOOL FEDERATION OF BUILDING TRADES EMPLOYERS.—Dinner and dance. Speaker, Mr. F. M. Sleeman. Adelphi Hotel, Liverpool. 7 p.m.

Friday, November 19.

THE SOCIETY OF ENGINEERS.—"Three-dimensional Projection as applied to Engineering Drawing," by Mr. W. E. Walters. 17, Victoria-st., S.W.1. 6.30 p.m.

ROYAL INSTITUTION OF GREAT BRITAIN.—"Power Sources and Power Utilisation," by Mr. F. F. Simon, C.B.E., Ph.D. 21, Albemarle-st., W.1. 9 p.m.

Saturday, November 20.

THE INSTITUTE OF QUANTITY SURVEYORS (Midlands Branch).—Discussion on the Revisions to the Standard Method of Measurement, introduced by Mr. A. Mottram, A.I.Q.S. White Horse Hotel, Congreve-st., Birmingham. 3 p.m.

THE ROYAL SANITARY INSTITUTE.—"Main Drainage in Relation to Housing Development," by Mr. T. Coates, M.Sc., and "Spotlight on Housing," by Mr. A. Rankine, O.B.E. Sessional meeting. Guildhall, Kingston-upon-Hull. 10 a.m.

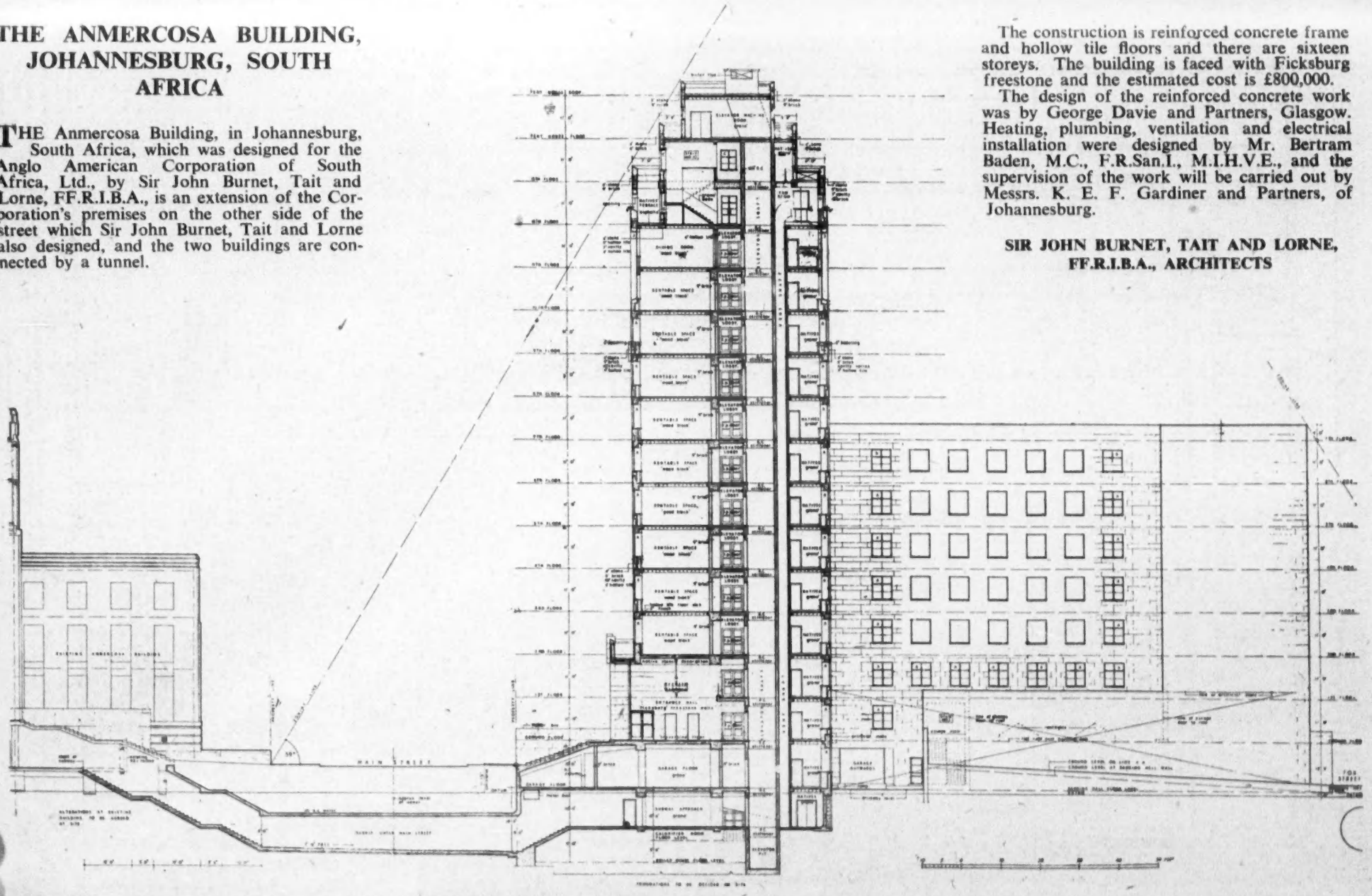
THE ANMERCOSA BUILDING, JOHANNESBURG, SOUTH AFRICA

THE Anmercosa Building, in Johannesburg, South Africa, which was designed for the Anglo American Corporation of South Africa, Ltd., by Sir John Burnet, Tait and Lorne, FF.R.I.B.A., is an extension of the Corporation's premises on the other side of the street which Sir John Burnet, Tait and Lorne also designed, and the two buildings are connected by a tunnel.

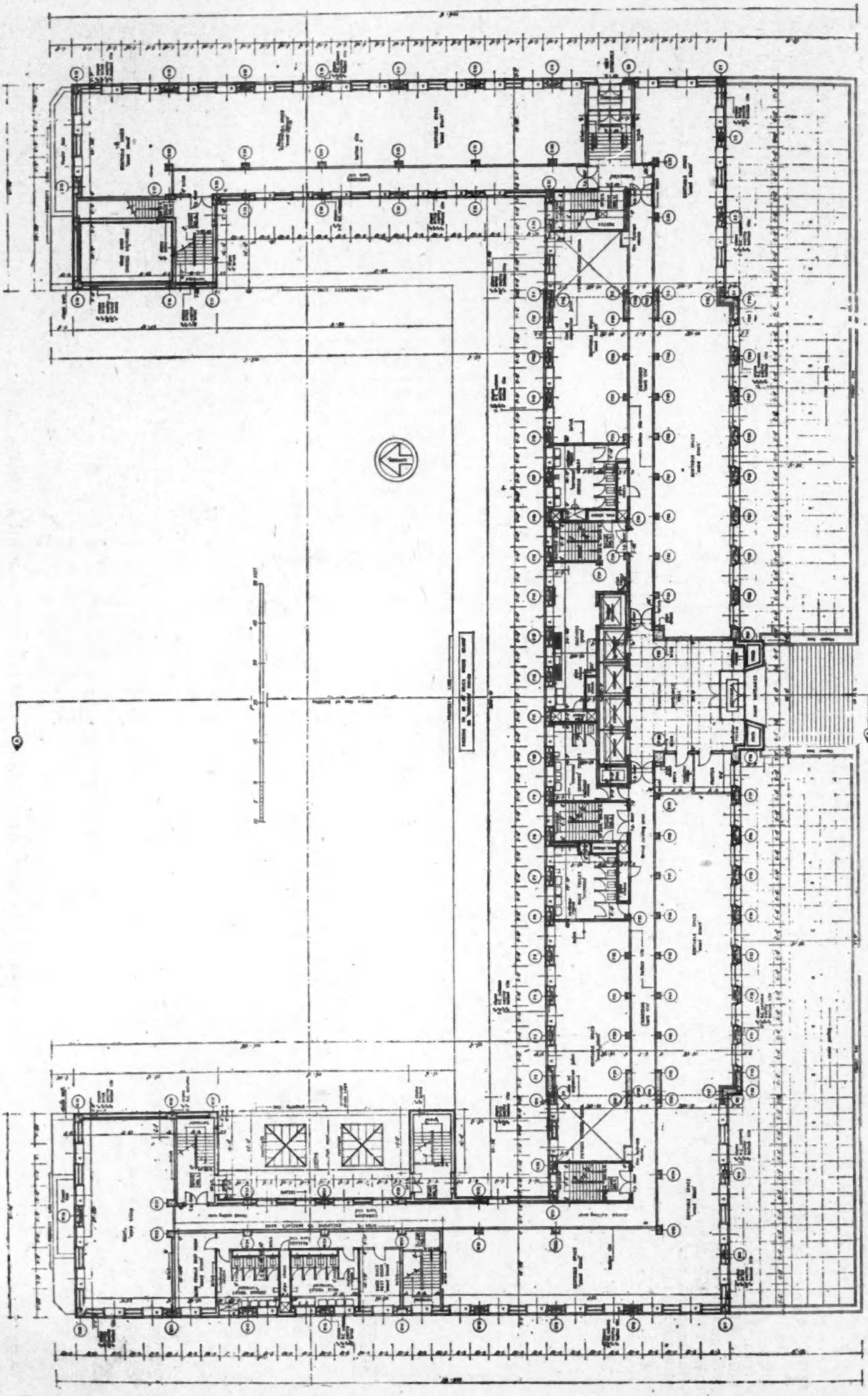
The construction is reinforced concrete frame and hollow tile floors and there are sixteen storeys. The building is faced with Ficksburg freestone and the estimated cost is £800,000.

The design of the reinforced concrete work was by George Davie and Partners, Glasgow. Heating, plumbing, ventilation and electrical installation were designed by Mr. Bertram Baden, M.C., F.R.San.I., M.I.H.V.E., and the supervision of the work will be carried out by Messrs. K. E. F. Gardiner and Partners, of Johannesburg.

SIR JOHN BURNET, TAIT AND LORNE, FF.R.I.B.A., ARCHITECTS



THE ANMERCOSA BUILDING, JOHANNESBURG, SOUTH AFRICA. Section A—A.



THE ANMERCOSA BUILDING, JOHANNESBURG, SOUTH AFRICA. Ground-floor plan.

The R.I.B.A. Inaugural Meeting

MR. MICHAEL WATERHOUSE'S ADDRESS

MR. MICHAEL WATERHOUSE delivered his inaugural address to the Royal Institute of British Architects on Tuesday evening. He is the third of his line to occupy the Presidential chair, his grandfather, Alfred Waterhouse, R.A., having served as President in 1888-91, and his father, Paul Waterhouse, in 1921-23.

After paying tribute to the qualities, professional and personal, of his grandfather and father, THE PRESIDENT continued: "It may be said of me that, in the world of architecture, to parody an old-fashioned expression, I was born with a silver set-square in my mouth. But, as all architects are aware, that is not a very nourishing diet. One cannot in these times subsist on past reputations. It is better, rather, to have a pair of dividers in the hip pocket, and for their points to stir one to ceaseless activity." An essential part of the background to his life was Tradition, and to those who—whether by upbringing or by circumstance, or even by the admirable confidence of youth in its ability to stand on its own feet and steer its own course unaided—regarded it with less or even none of the respect and affection that he (the speaker) did himself, he would offer two thoughts on the respect that he considered to be its due.

The first was expressed in a quotation: "That while good manners are civilisation's device for the smoothing of intercourse between contemporaries, Tradition is civilisation's device for the still more important intercourse between the men of old and ourselves, between ourselves and the men to come. Let us never be guilty of a breach in our link between the future and the past."

The second was the thought that, just as it was a fundamental principle of justice to others to condemn no one unheard, so it was only justice to oneself not to cast aside unexplored any knowledge from the past: and that to say of anything in this world that it was worth nothing to oneself was foolish unless one had first taken the trouble to examine, and determine exactly, what was its true value.

The Place of Tradition.

The President continued: "As to my own affection for Tradition, it may be that this springs from early memories of nursery days and the fact that my home was over the office. The office and my home being one, accounts, I know, for the family feeling that persists still in my own office to-day, and this leads me to express my thoughts on that intimate relationship which in all offices exists between an architect and his staff. The one is integral with and essential to the other; neither can exist, nor give their best to the world, without the other. In the matter of the relationships with, and within, our staffs, we architects have something in common which makes us a race apart. There exists nothing exactly like it in any other profession. I am bold enough to say that there is nothing quite as happy in any of those other walks of life."

SIR LANCELOT KEAY, K.B.E., M.Arch.(Lvpl.), Past-President R.I.B.A. (1946-8), from a portrait by James Gunn, unveiled at the R.I.B.A. on Tuesday, November 9.

MR. G. GREY WORNUM, F.R.I.B.A., from a portrait bust by Charles Wheeler, R.A., unveiled at the R.I.B.A. on Tuesday, November 9. The bust is the gift of Mr. Edward Maufe, R.A.

There was in every architect's life another feature to which he owed his very existence: his clients. Without them neither architects nor much architecture could exist. Architecture was so complex a blend of so many aspects of life as to be almost indefinable. But, whether we regarded it as an art or a profession, it was unique among either from the fact that not only was a client essential to the architect's performance of it, but also that his performance was both entirely with the client's money and at his expense. "To give of our best to the satisfaction of our clients and ourselves we must embody in our personality, or if not in our own at least in our staff, the outlook of the artist, the scientist and the man of business, and in addition other qualities too elusive to be pinned down in mere words.

"Here, too, I must speak of that other partner to our trinity: the builder. I am sufficiently old-fashioned still to consider that name his proudest title to fame rather than the modern one, contractor. It is his part to give to us, and to our clients, good building. So to do is a tradition and a reputation of which good builders are proud. A man, or a firm, can, however, be a good contractor but only an indifferent builder.

"Both architect and client have towards the builder an obligation. We architects have also toward them a duty, no less than to our clients. I will not embark upon this aspect to-night, but it is one of which I would speak on another occasion."

An Outline of Policy.

It was somewhat customary, though not necessarily traditional (continued the President), that the Inaugural Address should be in part a "Speech from the Throne" to outline immediate policy. "In the first place the greatest needs both within our Institute and also in the profession as a whole are unity and harmony. I class these together because the first cannot be arrived at without the second. Unity, like all essential goodness, can only be the outcome of good will. It cannot be reached through enmity and bitterness. We cannot, however, afford to neglect human nature. It is natural to humanity to differ. Perhaps

friction is ordained in order to keep bright and shining by their interaction one with another the particles of humanity.

"But though I may thus appear pessimistic as to the attainment of the ideal in our time, I do appeal with all my power to the loyalty and good will of all those within this Institute that they will realise and remember that the first step is to refuse to allow discord to enter among ourselves.

"I am convinced, as indeed are almost all of us, that the furtherance, not only of architecture itself but of its purpose for the ultimate benefit of both the State and the individual, can only be secured by the two great branches of our profession, the independent or private, and the salaried or official, architect, each in a fully active and virile state working together with mutual sympathy and good feeling.

"This is a fundamental tenet of the R.I.B.A., and I shall be vigorous both to combat the forces that are disruptive to this policy and, on the constructive side, to ensure the continuance of that smooth and happy working between these branches which was such a feature of the war years. I am certain that it is only thus that there can be maintained that fair and even balance which is essential to both parties and to architecture as an art and science.

"One other point that I must put to you is this. It has been often, and rightly, said that the R.I.B.A. is not a political body. This I reassert; we are in no way set up as a political body, we have no mechanism or organisation that could in any way pretend to attempt to represent the political views of our members. Of this we are conscious. But we have laid down for us in our charter a duty which is thus enjoined upon us as a policy. That policy I regard it as my duty to defend and uphold in the face of every or any person, or body, however exalted, who may oppose us in its execution.

"Finally, I would quote to you, as a more personal aspiration for us all, the words with which my grandfather ended his first inaugural address on November 5, 1888: 'Let us strive that we may all, both in our private practice and as members of this body corporate, do our utmost to give our art a firmer hold on public admiration and attention, and make our profession respected by all with whom we come in contact; so that every member of the R.I.B.A., whether his work be lovely or not, may at any rate show in his life the things that are honest and of good report.'"

Vote of Thanks.

MR. S. VYVYIAN HICKS, President of the Royal Institution of Chartered Surveyors, moved a vote of thanks. The fact that he had been asked to do so, said Mr. Hicks, was indicative of the great spirit of co-operation that had always existed between the R.I.C.S. and the R.I.B.A. On many occasions their representatives had served together on important committees; even at the present time they were together actively engaged on a committee considering the kind of training required for the town planner. Whatever might be the final answer to the question, he thought they all agreed that the town planner should qualify in one or other of the major professions before going on to specialise in town planning.

Turning to the question of registration—a matter which was engaging the attention of the Institution at the present time—Mr. Hicks said: "Having sat as a representative of the Institution for some seven or eight years on the Admission Committee of the R.I.B.A., I can realise the necessity there was to have registration. I am satisfied that an attempt should be made for registration, particularly of quantity surveyors."

Mr. Hicks went on to say that he felt sure the Institution had the support of the R.I.B.A. in asking the Minister to extend the time for submitting claims under Part 6 of the Town and Country Planning Act, 1947.

It was particularly fitting that he should be asked to propose the vote of thanks, for Mr. Waterhouse's grandfather had designed the headquarters of the R.I.C.S., and his father had been the architect for the extension that was later carried out.

MR. L. SYLVESTER SULLIVAN, F.R.I.B.A., seconding, said the President had spoken of "unity within and without." They already had unity within; unity without should be possible, and he was all in favour of it, provided they could have it without a rift within.

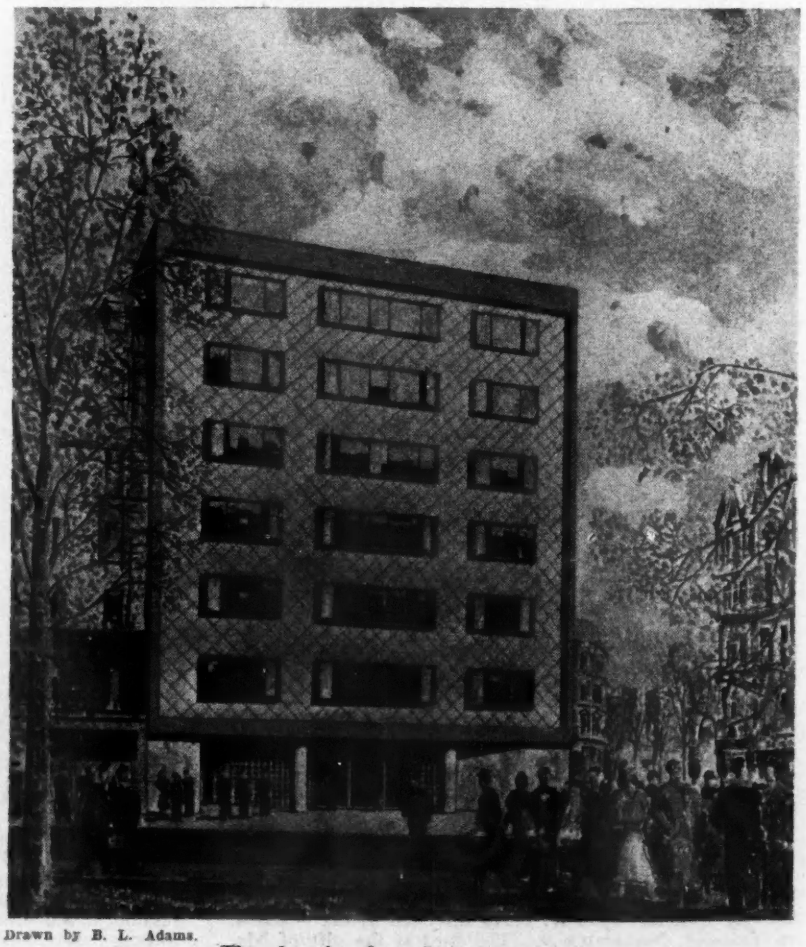
The President had also spoken of tradition; but tradition did not mean committing the oldest sins in the newest ways. "My traditions," continued Mr. Sullivan, "were learned and stored during my impressionable years, during my stay in New Cavendish-street, where as a junior I was given as much attention as, if not more than, any of the seniors. Our President's grandfather used to draw sketches in the margins of my drawings to illustrate his points; and very beautiful sketches they were too; I wish I had some of them now. Also, he gave me one valuable piece of advice—'One should not rely too much on the pertinacity of material—it needs support.'"

OFFICES, LEICESTER-SQ., for occupation by the GOVERNMENT OF INDIA

DE METZ AND BIRKS, FF.R.I.B.A., ARCHITECTS

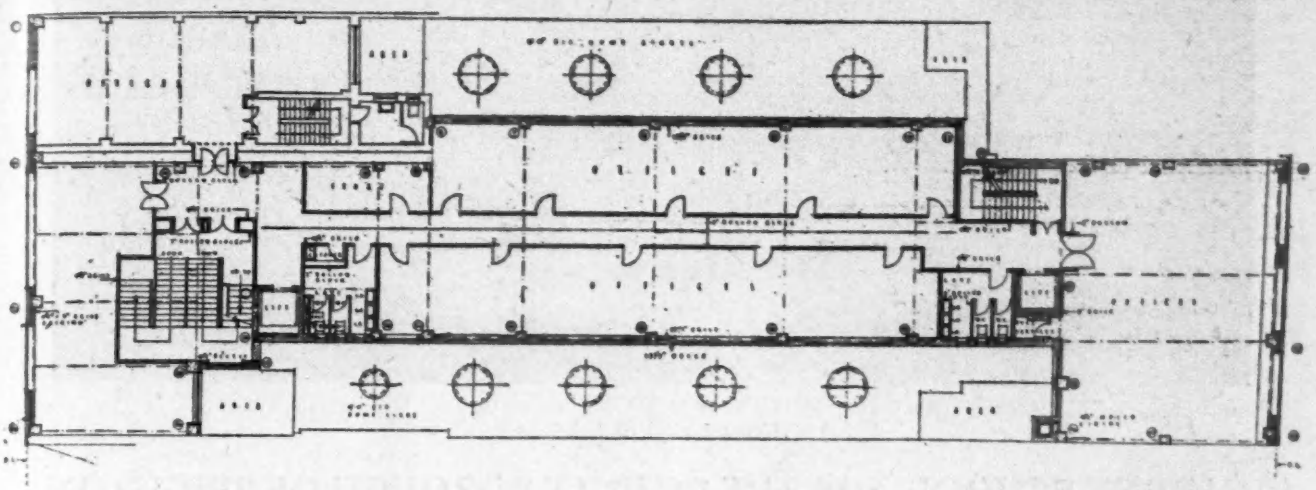
THIS office building, for occupation by the Government of India, is to be erected on a site in Leicester-square, London, formerly occupied by the Archbishop Tenison's School. William Hogarth lived in a house on the same site 250 years or so ago. The new building occupies a corner position facing Leicester-square and Charing Cross-road, and is reinforced concrete framed, externally finished in Portland stone. The surrounds to the front elevations and to the window openings are in grey-blue unpolished honed slate.

The basement and ground floor are largely taken up by a conference hall, providing accommodation for 900 persons. Offices and a canteen and kitchen facilities are on the remaining floors. Floors throughout are of asphalt tiles, and doors and metal windows are of standard design. Heating is by gas-fired low-pressure hot water. Work on the foundations and underpinning has now been completed and a start on the superstructure is expected to be made in the near future. The quantity surveyors are Messrs. Veale and Sanders.

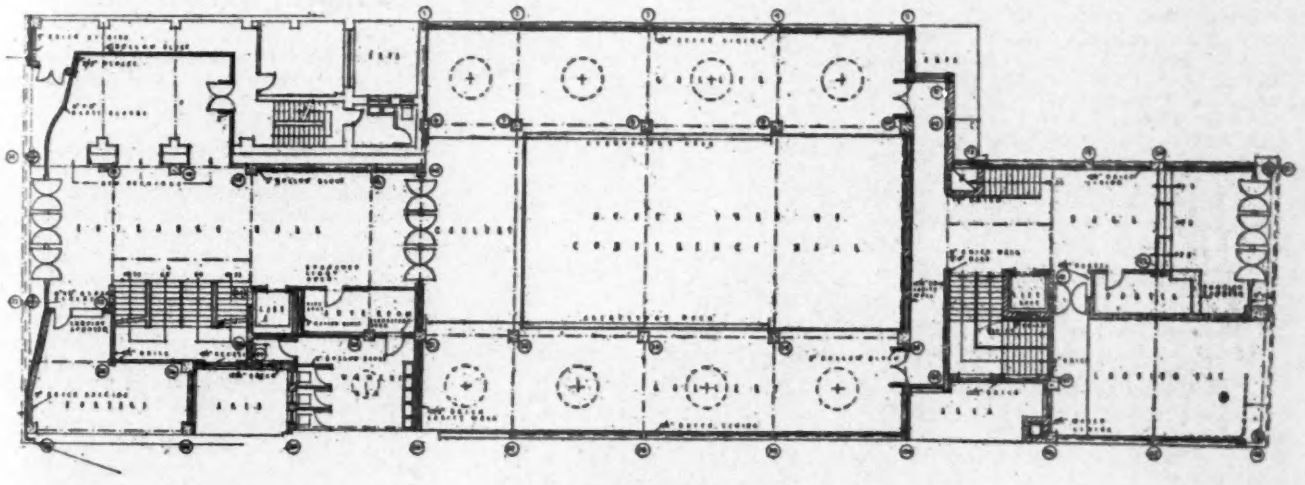


Drawn by B. L. Adams.

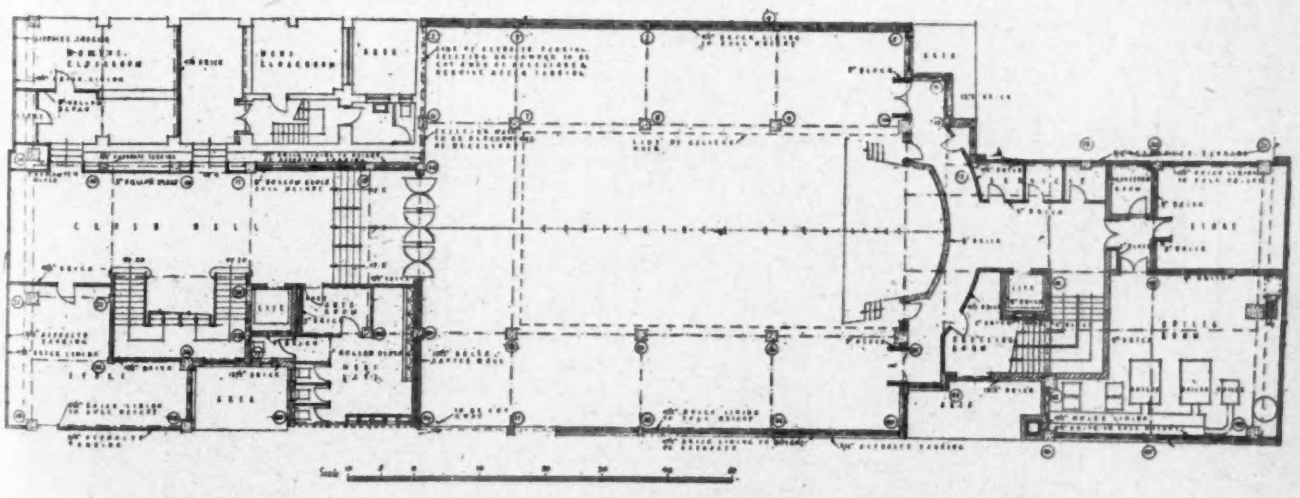
The elevation from Leicester-square.



Typical upper-floor plan.



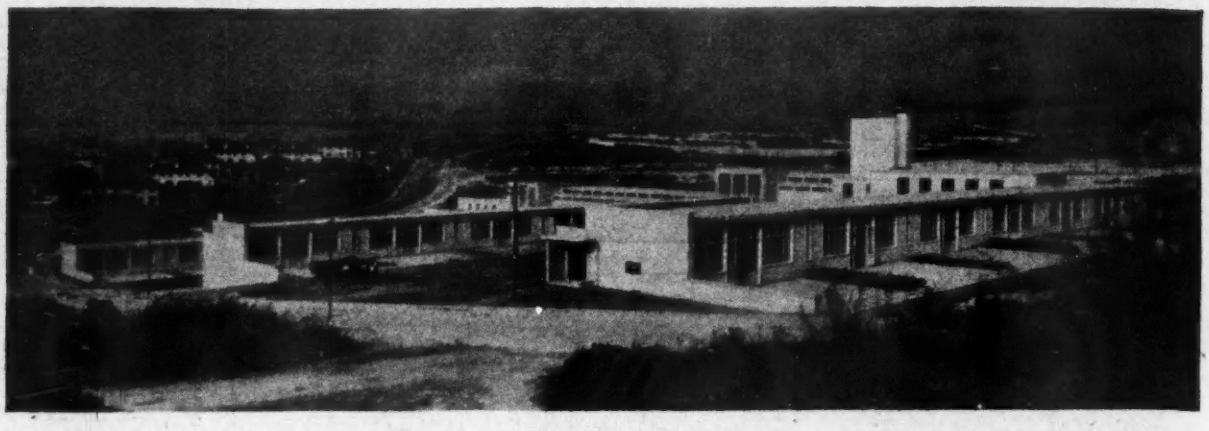
Ground-floor plan.



Basement plan.

OFFICES, LEICESTER-SQUARE, W.C., FOR OCCUPATION BY THE GOVERNMENT OF INDIA

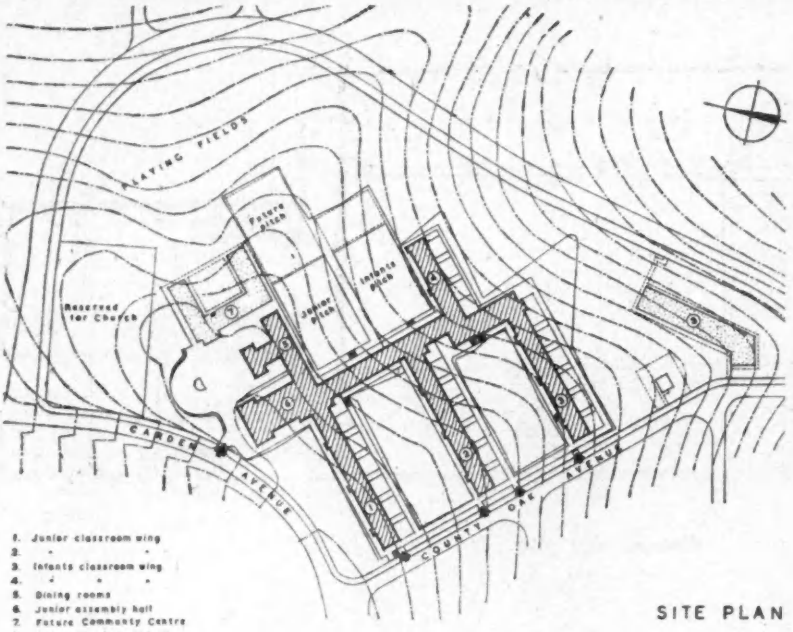
DE METZ AND BIRKS, FF.R.I.B.A., ARCHITECTS



General view of buildings.

CARDEN SCHOOL, FOR THE COUNTY BOROUGH OF BRIGHTON

D. J. HOWE, M.I.C.E., BOROUGH ENGINEER AND SURVEYOR. P. BILLINGTON, A.R.I.B.A., A.M.T.P.I., SCHOOL ARCHITECT

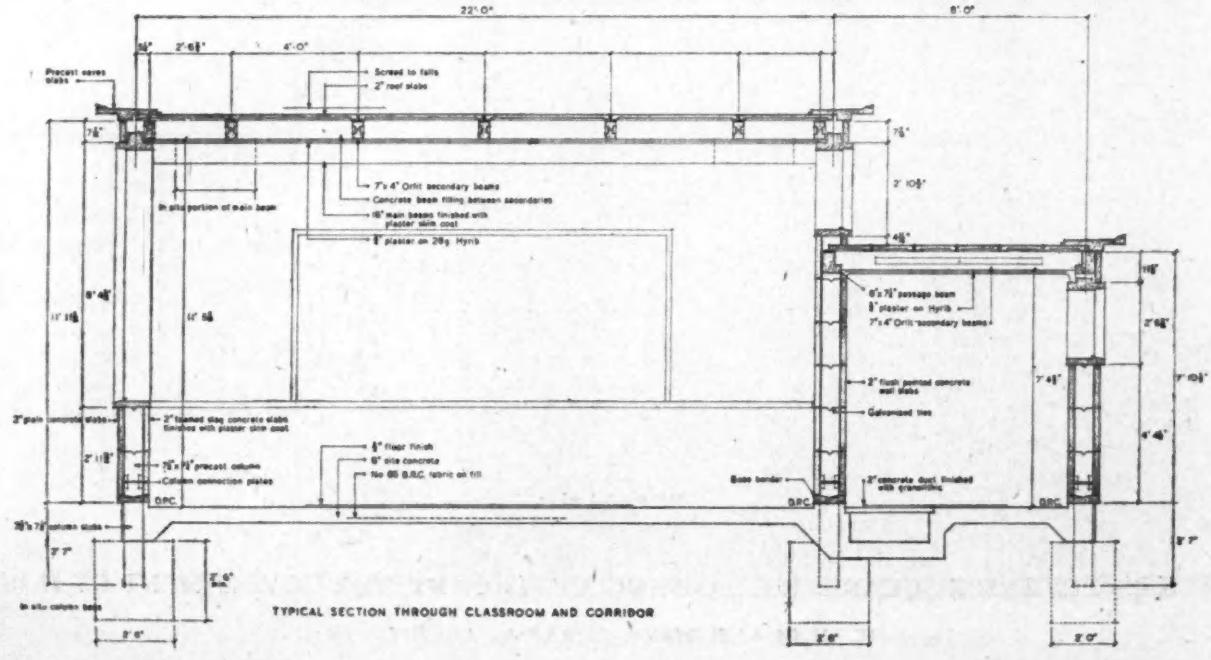


SITE PLAN

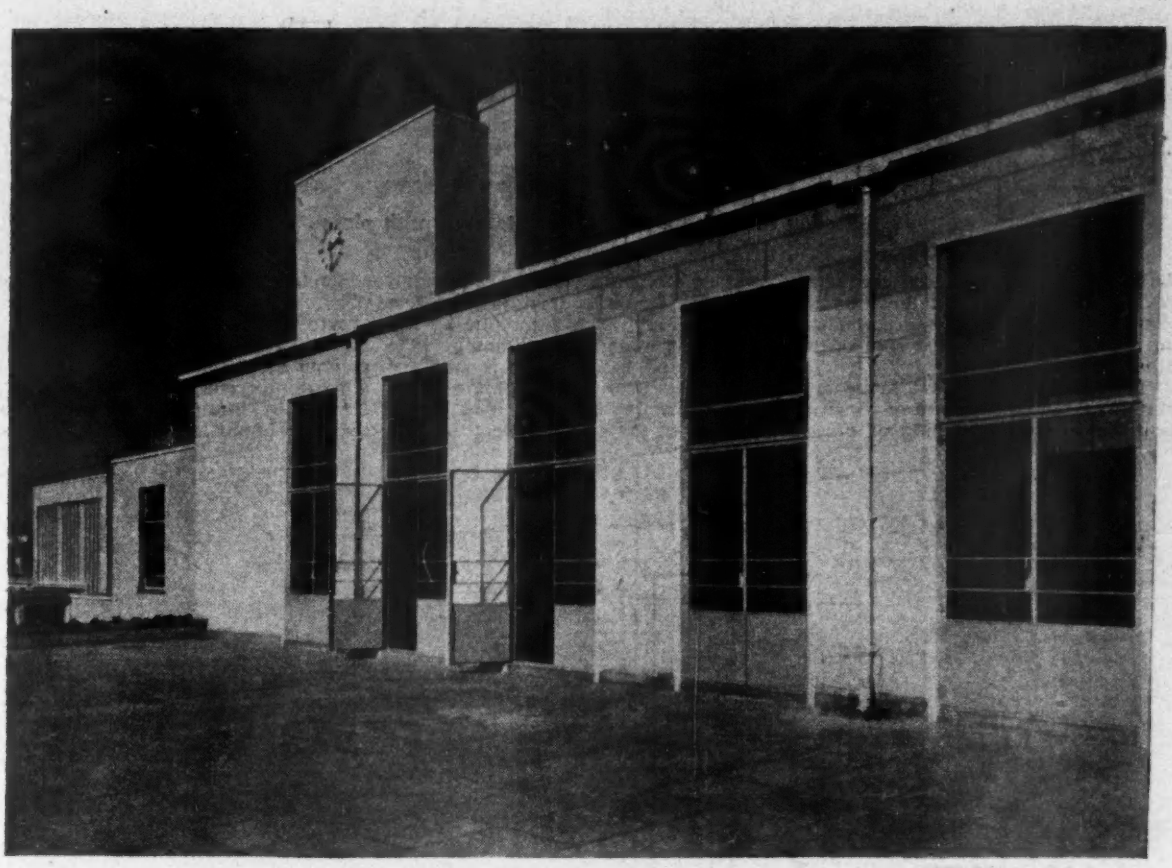
THIS school is a first step towards the fulfilment of the Brighton Educational Development programme estimated to cost £3,000,000.

It is a three stream Primary School for Infants and Juniors with places for 840 children. Preparation of the plans was started in the last quarter of 1945 and work began on August 1, 1947. The first classes were held on September 6, 1948, with an attendance of about 500. The complete scheme for the site also includes a Youth and Community Centre and Nursery School, but neither of these is to be erected until building priorities permit.

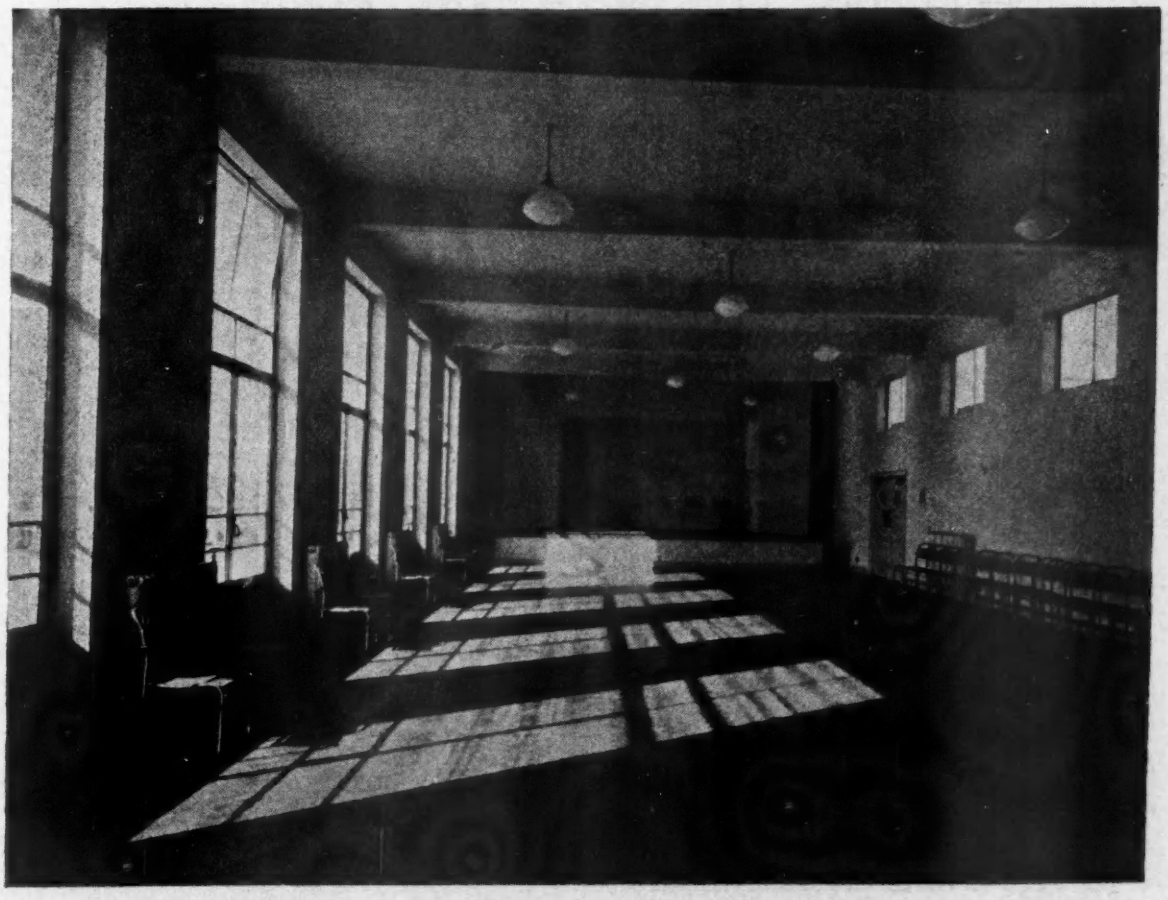
The Infants' and Junior Schools are both designed as self-contained departments. The first is planned entirely on one floor level and occupies the highest position, the other is on two levels and occupies the lower sections. Classrooms throughout have an area of 600 sq. ft., and are separated from each other by a small cloakroom or a store-room. Classroom lighting reaches



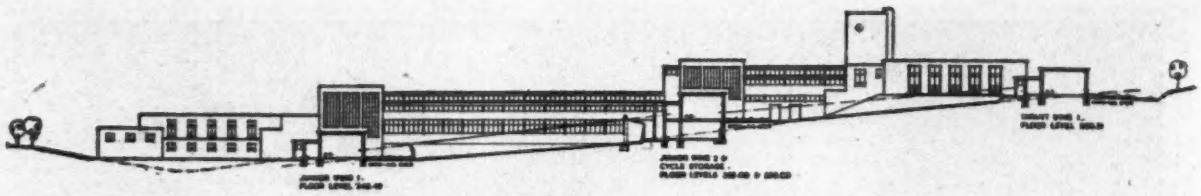
TYPICAL SECTION THROUGH CLASSROOM AND CORRIDOR



Exterior of infants' assembly hall.



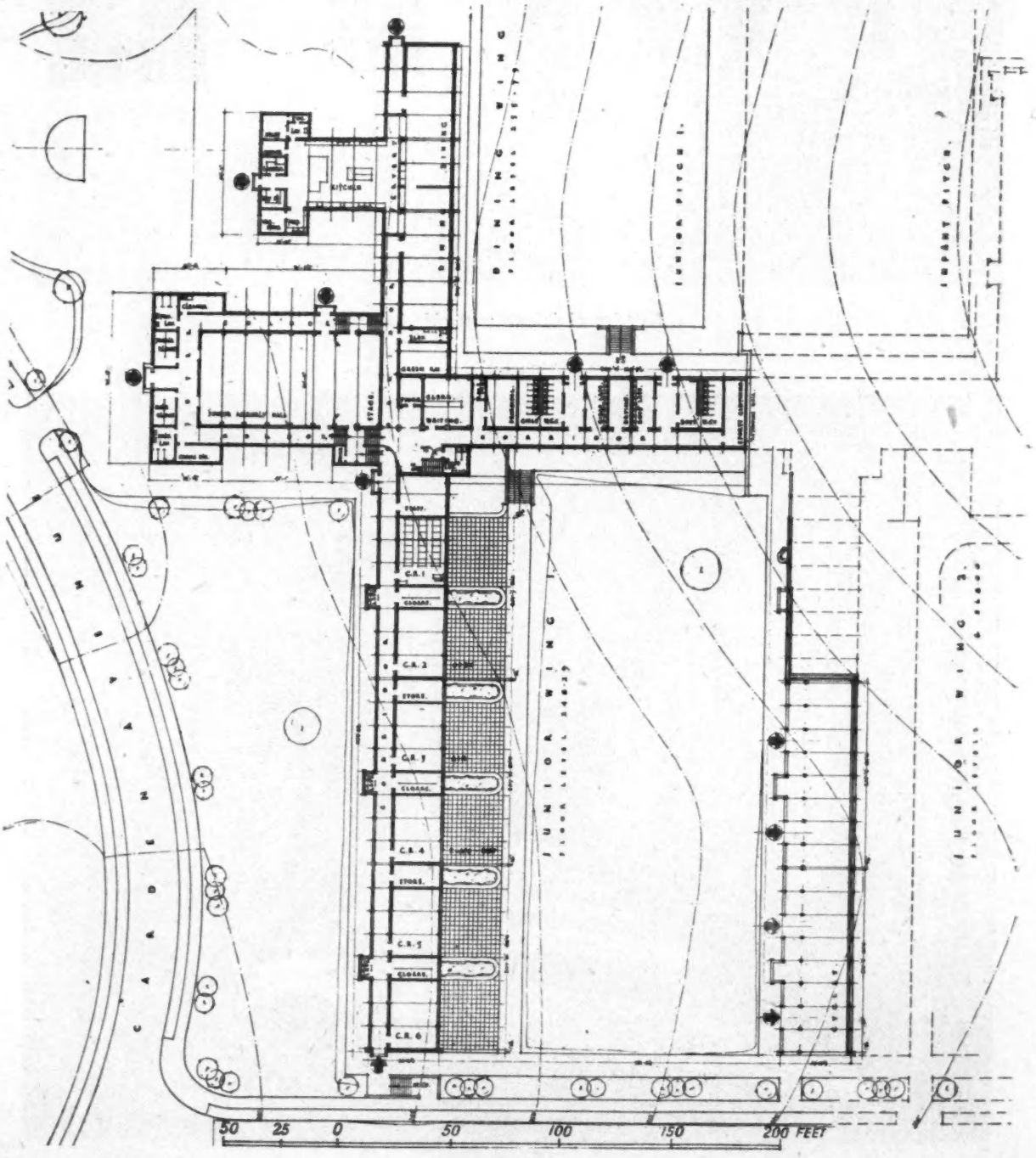
CARDEN SCHOOL, BRIGHTON. Interior of infants' assembly hall.



Section through the schools (not to scale with plans).

the required 2 per cent. daylight factor. Each has three large windows on the south-east side and clerestory windowing above the corridor flat roof on the other.

The school is the first to be built mainly on the Orlit system of construction which uses a framing of precast concrete columns, main beams, and secondary beams and precast concrete roof slabbing. A jig outlining the foundation and positioning the columns and base bonder is used for the setting out. Stub columns with steel connecting plates welded to the top ends of the reinforcement are first concreted into the foundation and floor slabs. The precast columns 7¼ in. square have steel connecting plates at the foot corresponding to those on the column stub and similarly welded to the reinforcement. The joint is formed by bolting. Connections between columns and the 16 in. deep



Plan of junior wing 1.

main beams are formed *in situ*. Secondary beams 7 in. by 4 in., supported by the main beam carry the 2 in. thick precast roof slabbing.

The cladding to the frame consists of a 2 in. outer concrete slabbing manufactured with an integral surface finish of Hopton Wood stone and an inner slabbing, either of dense or foamed slag concrete. The outer and inner slabs are tied across the 7½ in. cavity between by galvanised wall ties. Surrounds for door and window openings are also made of precast concrete units, and are designed to suit the walling and framed construction generally.

The whole structure is carefully detailed so that all the precast members fit together quickly and with the minimum of labour.

Internal walls of classrooms, halls and administrative rooms are finished with a skim coat of "Sirapite" plaster and painted; in corridors and lavatories plain concrete slabbing is flush pointed and distempered. Ceilings generally are ¼ in. plaster on Hy-rib. The floors of classrooms in the Infants' Department and of Administrative rooms generally, are finished with Semastic tiles. Junior Department classroom floors are paved with Orlit S-type tiles, and corridors and lavatories with concrete tiles. The halls of both departments have oak block flooring reclaimed from salvaged timber.

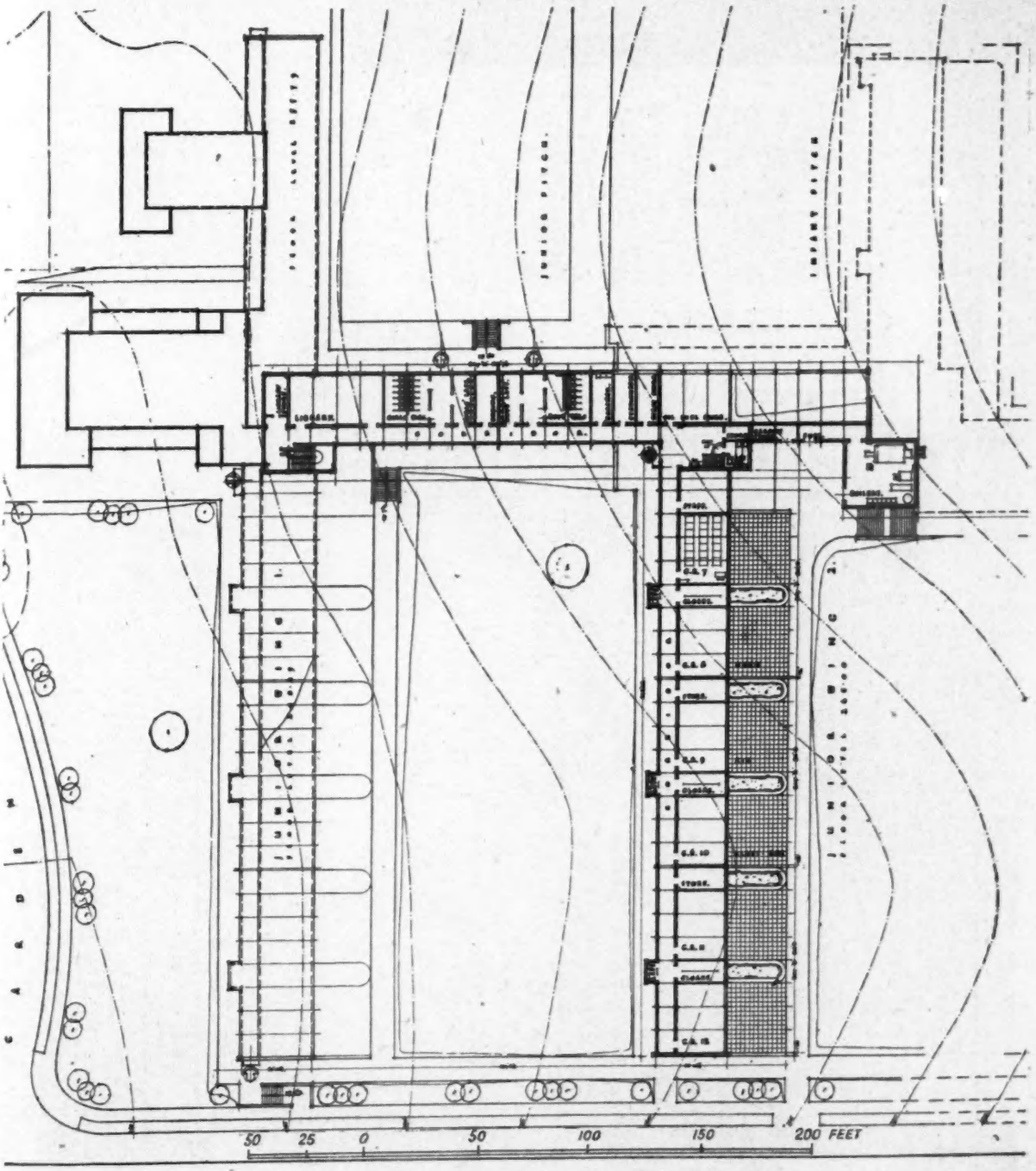
The decoration and the tubular steel furniture with which the school is furnished have been considered as a whole and different colour schemes used for each of the classroom wings.

The lowest tender received amounted to £157,566. The estimated cost of the scheme on a normal level site would be £150 per place or, for 840 places, £126,000. The difference between this and the tender figure is entirely attributed to bulk excavation for levelling, increased foundation depths, heavy retaining walls and staircases.

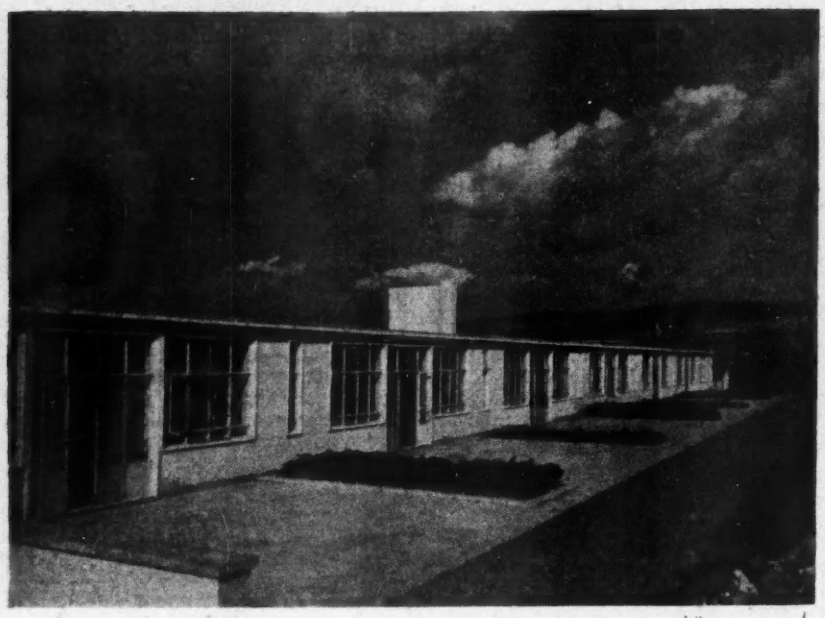
The school was completely finished by November 10, when it was officially opened by the Minister of Education.

The quantity surveyor was Mr. T. Barrett, F.I.A.S., and the general contractors were Messrs. Kirk and Kirk, Ltd., of Putney.

The main sub-contractors were:—Orlit, Ltd., precast concrete units, tiling and skirtings; Hall and Stinson, Ltd., electrical installation; G. N. Haden and Sons, Ltd., heating and hot

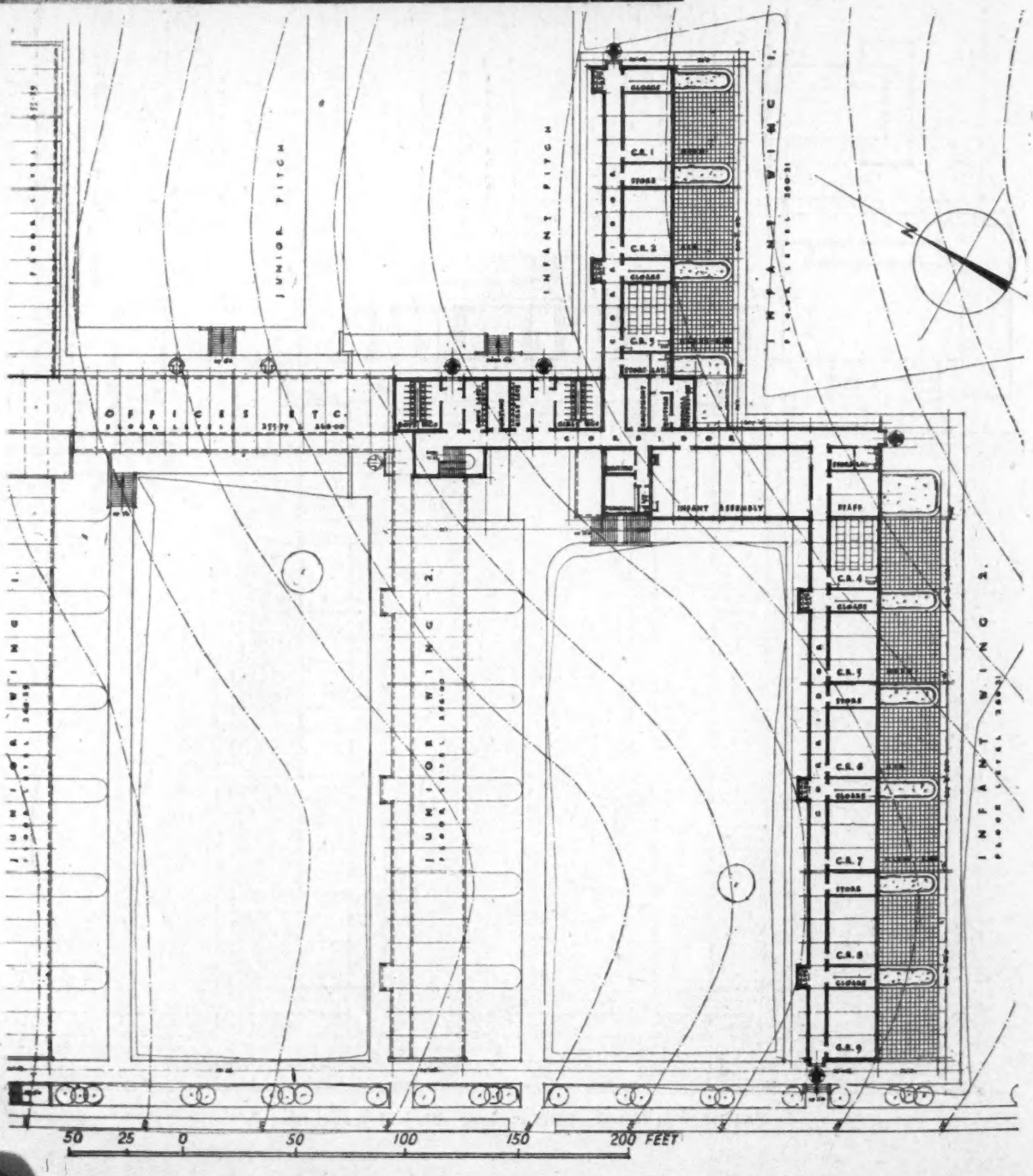


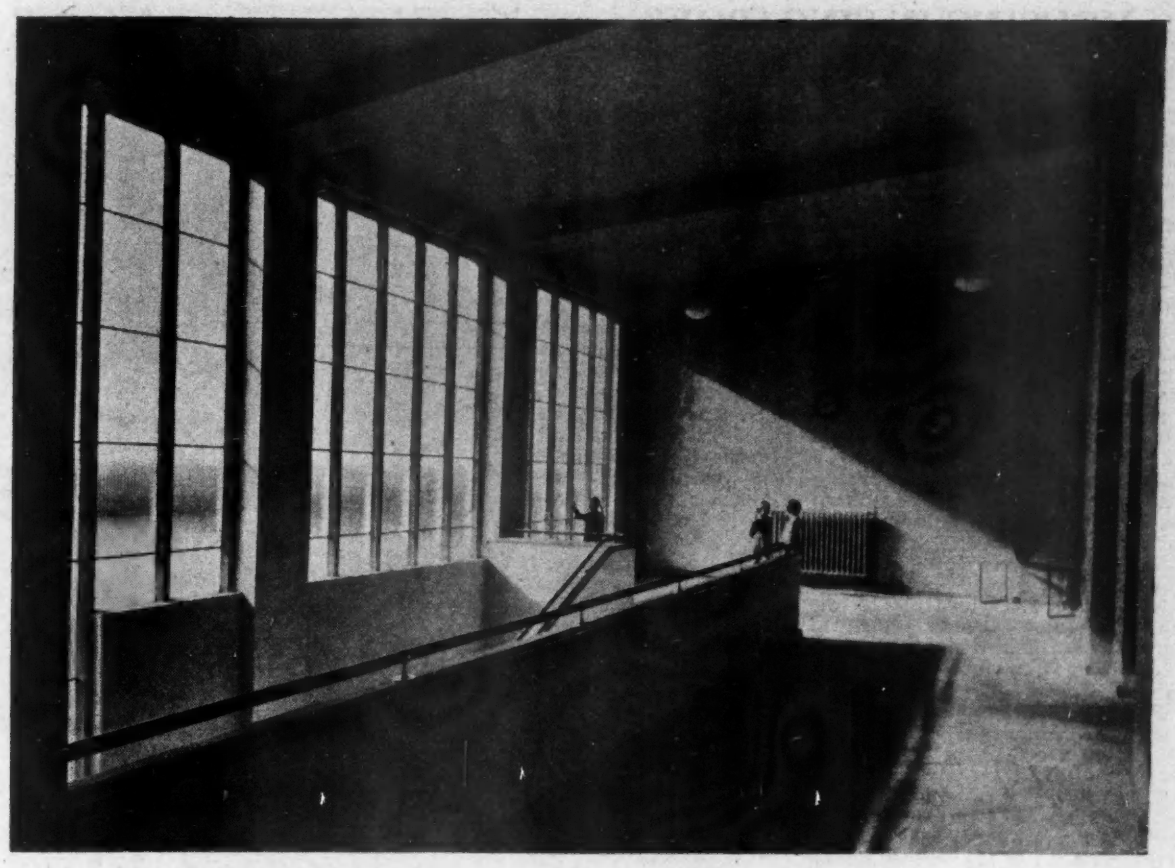
CARDEN SCHOOL, BRIGHTON. Plan of junior wing 2.



water; Semtex, Ltd., flooring; May Acoustics, Ltd., acoustical treatment; Zanelli (London), Ltd., floor tile fixing; J. A. King and Co., Ltd., "Glascrete"; Banister Walton and Co., Ltd., structural steelwork; Henry Hope and Sons, Ltd., steel doors, windows, w.c. partitions, etc.; E. B. Blackwell, Ltd., interior and exterior decorations; W. A. Telling, Ltd., plasterers; Everseal Products, Ltd., roofing; Servants (Brighton) Ltd., plumbing; William F. Rees, Ltd., paving, paths and playground; Franklins, glazing; Shanks and Co., Ltd., sanitary fittings; S. Grahame Ross, Ltd., handrailing, cloakroom fittings, etc.; Hy-Rib Sales, reinforcement and false ceilings; Clark-Gay and Co., special paint; Arthur Sanderson and Sons, Ltd., paint suppliers.

Left: **Exterior of infants' classroom wing with paved areas for open-air classes.** *Below*: **Plan of infants' wing.**





Connecting staircase at one of the changes in floor level.

CARDEN SCHOOL, BRIGHTON. Interior of a typical classroom.

HOUSING IN SINGAPORE

IMPROVEMENT TRUST'S REPORT

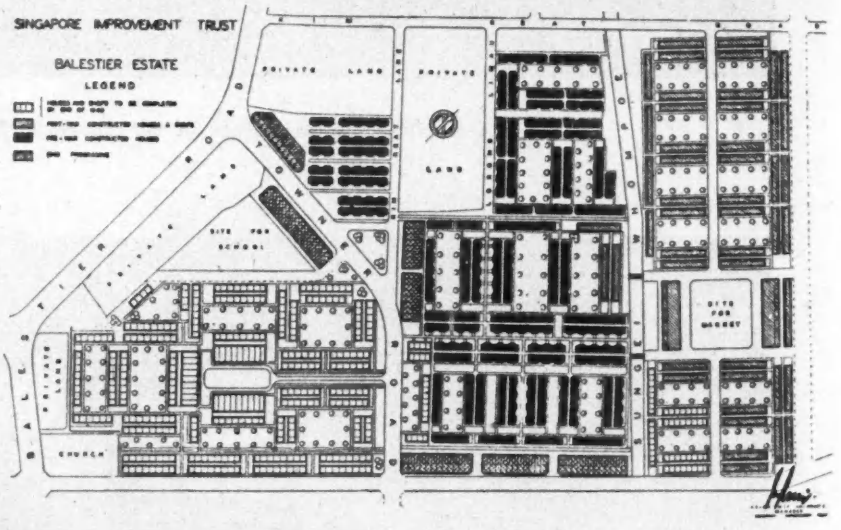
NOT so long ago the Colonial Empire, when it was not regarded as a burden on the British taxpayer (as it was apt to be at Budget time), was either taken very much for granted or largely forgotten. The British public knew little about it beyond the fact that a comparatively small number of Britons were shouldering the "white man's burden" in uncomfortably hot climates and doing their best to bring the advantages of civilisation to backward native populations. To-day, largely as a result of political and economic changes brought about by the war, there is a much livelier general interest in and understanding of Colonial affairs. We are now awakening to a realisation that, so far from being a burdensome trust, the Colonial Empire is a valuable, perhaps indispensable, asset to our future welfare, though badly in need of finance and skilled help to develop its potentialities.

It is not entirely the fault of the British public that so little should be known of the colonies, for they have been singularly reluctant to talk about themselves. To take the case of a small one—Singapore—Mr. L. Rayman, chairman of the Singapore Improvement Trust, in a foreword to the first account of the work of the Trust ever to be published,* which we have just received, writes: "In previous years it was considered that the work of the Trust was not intelligible or of no interest to an apathetic public, or that publicity would be contrary to the true public interest. So no account was published. These were views I did not share. . . . But when I assumed office as Chairman of the Trust, the Second World War had broken out, and it appeared to be as inadvisable as it was impracticable to start an innovation in so comparatively minor a matter. . . . The omissions of the past are now to some extent explained in the following pages. It is to be hoped that readers will understand and view sympathetically the work which the Trust is trying to accomplish with its limited means and circumscribed powers, and will give the Trust every assistance in its endeavour to improve the Town and Island of Singapore generally and in particular—where the present-day emphasis is especially laid—to rehouse the people and to abolish the fearful slums of the town with their terrible overcrowding and their attendant evils of crime and disease."

The Trust was brought formally into existence by the Singapore Improvement Ordinance, 1927, and it works in close liaison with all Municipal Departments. The purpose of the Ordinance was "to provide for the Improvement of the Town and Island of Singapore," but it does not apply to lands for the time being in the occupation of any of H.M. Naval or Military Forces, or of the Air Force, though in practice any new layouts contemplated by the Service Departments are submitted to the Trust for observations and suggestions. A committee appointed in 1936 by the Governor to review the Ordinance sat for two years and in 1938 produced a voluminous report which was approved. Late in 1940 a start was made on the drafting of a bill which was virtually completed by 1941, when the Japanese War came, and the draft was lost during the occupation. A new draft has now been completed, but as the bill is based on a report ten years old many of the provisions are out-of-date, and if it is to incorporate any of the far-reaching changes which have been enacted in English legislation and brought into line with modern planning practice much redrafting, it is stated, will be necessary.

The Report under notice gives full information about the Trust's constitution, its staff, finance and general activities. Finances fall under two main heads: (1) Improvement Fund from rates and Government's equivalent contribution, and (2) $10 Million Fund, earmarked for the clearance of slum areas by Government in 1926. The planning of new roads and open spaces and the widening of existing roads both in the town and

Artisans' Houses, Balestier Estate (1932-40).



Tiong Bahru Flats, 1947.

* The Singapore Improvement Trust, 1927-1947. Published in Singapore. Price, Two Dollars.

rural area receive the constant attention of the Trust. The General Improvement Plan which exists is not, however, meant to be a complete plan for the Island of Singapore; it is merely a record of existing development together with layouts and sub-divisions which have reached the stage of statutory approval. It has been built up in piecemeal fashion in circumstances over which the Trust has had no control. In order that all this development may be co-ordinated it will be necessary to enact legislation to provide for a statutory plan for the island.

SINGAPORE SLUM. Living, sleeping, working and ablutions in one room and on footway.

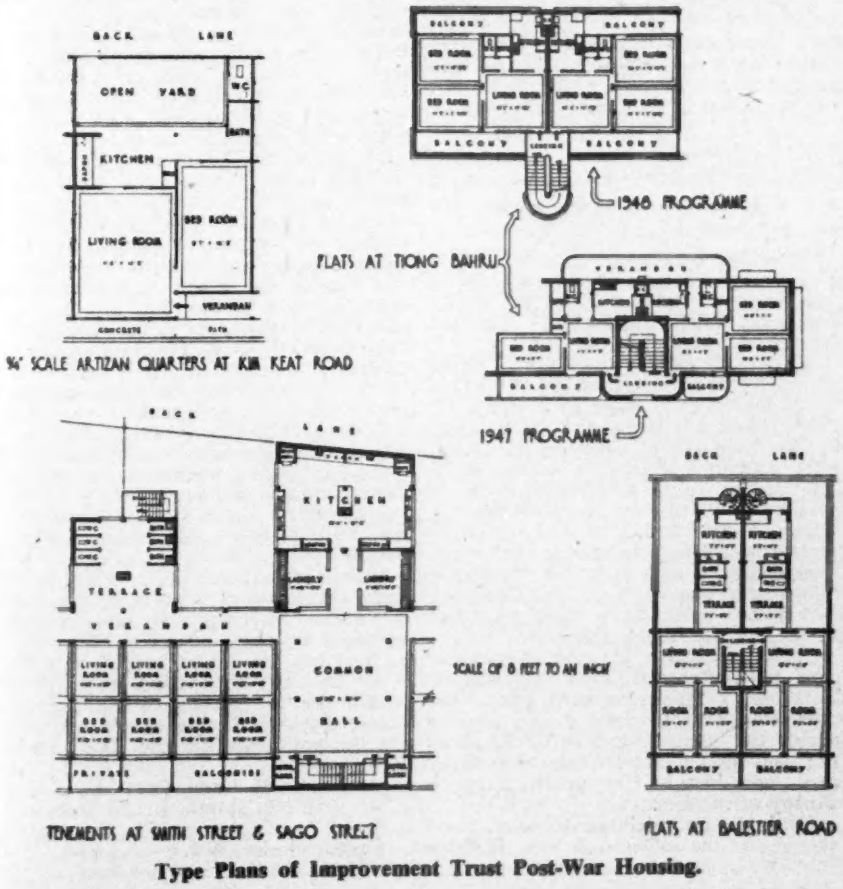
The Trustees were for many years reluctant that the Trust should undertake any housing on a large scale, as such was apparently not the original intention when the Trust was created. The Ordinance lays no obligation on the Trust to provide housing except for persons dishoused by reason of improvement or sanitation schemes. As, however, the shortage of accommodation became acute and private enterprise did little to help, the Trustees eventually decided to erect houses and flats mostly for the poorer classes. The Trust now controls 2,327 tenancies. It has carried out a large programme of "back lane" work which has opened up some of the worst slum areas in Singapore and provided light, ventilation, kitchen and bathroom accommodation and sewerage to about 90 blocks of congested and overcrowded property which were in an insanitary condition. Illustrations of slum interiors included in the Report show simply appalling conditions that ought no longer to be tolerated.

The new flats which have been built by the Trust are excellent in design and must seem like palaces to the poorer classes who have had to endure life in the slums. Some good prefabricated houses of precast concrete units have also been built. Much, however, remains to be done. There are many registered applicants for accommodation and numbers have increased to such an extent that the register has had to be temporarily closed.

The immediate need is for a "Master Plan." In spite of the present lack of staff the first steps have been taken by the Trust on a survey of land utilisation. "When the basic data are collected and compiled," the Report concludes, "it will then be possible for all departments to co-operate in a spirit of mutual understanding, in essential research on the various aspects of planning, and in the production of a Master Plan, within which the people of Singapore will be able to live their lives according to their peculiar needs, and without detriment to the community at large."

The general impression one gets from a scrutiny of the Report is of a great effort being made by an inadequate organisation to cope with a problem of appalling difficulty. Clearly if it is to be solved quickly, as it should be, there must be a considerable increase in staff and in financial help. We trust that the Colonial Office is alive to the urgency of the housing problem of Singapore.

The Report is a carefully detailed production on which we would offer a word of congratulation to its compiler, Mr. J. M. Fraser, A.R.I.B.A., A.M.T.P.I., A.M.I.Struct.E., Manager of the Improvement Trust.



Type Plans of Improvement Trust Post-War Housing.

INDUSTRIALISATION OF PAKISTAN

TRADING ESTATES FORMED

WHEN the Pakistan Government came into power it realised that if a measure of prosperity was to be gained by that country then rapid industrialisation was necessary, but it was also anxious that care should be taken to avoid over-conglomeration of factories with the attendant evils of slums, overcrowding and unhygienic living conditions for the workers. It was, therefore, decided to adopt the principle of constructing Government-owned trading estates or planned industrial areas in which conditions would be made so attractive for manufacturers by comparison with elsewhere, that there would be no desire to locate a factory anywhere but on a trading estate. The need for regulations governing factory locations would therefore, in the majority of cases, be avoided. This policy was first adopted by the Provincial Government of Sind, a Province which is predominantly agricultural in its economy, and having most of its population concentrated in certain areas on account of the extremely high temperatures experienced away from the coast. In 1947, the Provincial Government, in the face of severe financial difficulties caused by the partition of India, authorised the initial expenditure of £375,000 on the preliminary construction of three trading estates at Karachi, Hyderabad (Sind) and Sukkur, with a promise of a further £750,000 when necessary. It was reluctantly decided that it was not possible to follow the pattern of British trading estates by actually erecting the factories for occupation by tenants, but only to develop the land, providing all facilities and services on a nominal rental basis, and assisting intending tenants to obtain their requirements of steel, cement, timber and other materials in short supply, for factory constructing. The Sind Government received over four hundred applications by June, 1948. Doubts which first existed as to the feasibility of introducing trading estates on similar lines to those in Great Britain were quickly dispelled and the Provincial Government set to work in earnest to carry out its plans. The Pakistan Government is now planning the early construction of Government estates in East Bengal, the West Punjab and the North West Frontier Province. It is probable that five will be required over the first development period. The establishment of trading estates in Pakistan greatly assists foreign manufacturers who desire to set up factories in the new Dominion.

CORRESPONDENCE

[Whilst we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

Architects in Private Practice.

TO THE EDITOR OF *The Builder*.

SIR,—From the very interesting figures given by Mr. Swarbrick in your issue of November 5, it appears that out of a total value of building work licensed by the Ministry of Works between May 9, 1945, and December 31, 1946, amounting to £270,748,000, only one-fifth (£53,920,600) was designed and supervised by architects; the remaining four-fifths (£216,826,200) was designed and supervised by "consulting engineers, commercial structural engineers or other companies."

Official architects are stated to have dealt with two-thirds of the total of £53,920,600 and private practitioners with the remainder, 1,250 well-known architects and 3,750 not well-known sharing work to the value of £13,823,090 equally between the two groups.

Mr. Swarbrick calculates that each of the not well-known practising architects earned on the average about £20 for 12 months' licensed building work. On this basis it may further be calculated that if the whole of the work allocated to the 7,000 official architects had been diverted to the 5,000 private practitioners, the average earnings of the latter would have been increased by about £66 per annum.

It is not understood, therefore, how it is possible that the diversion of "a small percentage of the work available," so small as to have little effect on the work of official architects, would be sufficient to check depletion of the ranks of those practising privately. Unless I have completely misunderstood Mr. Swarbrick's figures, they not only condemn the solution he advocates, but point to the true solution. The lesson to be derived from the fact that building work to the value of £216,826,200 out of a total of £270,748,000 was not designed and supervised by architects appears to be completely ignored. If these figures are correct it is glaringly obvious from whom work should be diverted to architects.

LEONARD C. HOWITT.

Manchester.

Town Sites and the Planning Act.

TO THE EDITOR OF *The Builder*.

SIR,—The text of the Central Land Board's pamphlet "House 1" in your issue of November 5 makes clear the position of those purchasing plots of land for individual houses. However, it seems probable that there will be an almost universal sellers' strike. In many cases in towns land formerly partially developed with buildings has been purchased for resale as building plots, on which land a considerable amount of money has been spent, e.g., the demolition of old and obsolete buildings which have small salvage value, the making of additional roads and the provision of drainage facilities. The restricted value of such sites is its *present use value*, i.e., nil, since it is not at present in use, and apparently in determining the amount of the development charge the Central Land Board disregards the costs, as mentioned above, that have been incurred.

As far as the writer is aware, the Central Land Board can only make a compulsory purchase when the land is actually offered for sale, and where the vendor and the would-be purchaser fail to come to terms regarding the price to be paid for the site in its present use and condition, having regard to the provisions of the Town and Country Planning Act, 1947. Thus, many land-owners in the class referred to above may not be willing to dispose of the sites for next to nothing for which they may have paid a fairly high price and which they have partially redeveloped with roads, so as to form building plots, but to retain the land through which they have incurred considerable expense.

B. A. P. WINTON-LEWIS.

12, City-road, E.C.1.

The "Perfora" Flooring System.

TO THE EDITOR OF *The Builder*.

SIR,—I was interested to read the very able description of the "Perfora" system of reinforced hollow brick floors which appeared in *The Builder* for October 29. I was surprised, however, to read that the system originated in Holland and Belgium after the war, because I came across a somewhat similar system of precast hollow block reinforced concrete floors in Italy during the war.

This Italian system, which I recall, comprised a number of hollow beams formed on the site from precast hollow concrete blocks having a horizontal groove top and bottom in each side. The blocks were laid out end to end to form a beam, and the grooves thus became continuous on each side of the beam. Reinforcing rods were cemented into the grooves and the whole became a hollow precast reinforced concrete beam which was lifted into position. The precast hollow blocks were made on the site in a simple vibrating block-making machine, and were so designed that the bottom projected beyond the vertical sides in such a way that when made-up beams were placed side by side a U-shaped recess was formed. In this U-shaped recess additional reinforcement was placed as necessary and the whole concreted *in situ*.

It was interesting to note that, when forming the beams, the precast blocks were placed on a bed slightly convex in section, while the rods were cemented into the horizontal grooves. No doubt this was to overcome the initial deflection.

R. HAZZLEDINE.

Grove House,
Northfleet, Kent.

Holiday Scheme Management.

TO THE EDITOR OF *The Builder*.

SIR,—May I comment upon Mr. Chapman's long and very obscure defence in your issue of October 29 of the Building and Civil Engineering Holidays Scheme Management Company?

(1) Mr. Chapman states that I could not have had a Whitsun Holiday card, as I left the industry prior to January 12, 1948. Since I have sent my cards away to the Management Company, I cannot state definitely whether I had a Whitsun card or an *Easter* card, if such are issued. This can be checked through Messrs. Nuttall and Sons, Ltd., of Grosvenor-gdns., S.W., my former employers. Incidentally, I may state here and now that I have received from the Company within the past week full payment, £1 9s. 6d., for *both* cards.

(2) Mr. Chapman has taken very good care to concentrate upon my alleged lack of a Whitsun card, and has thus attempted to draw a red herring across the path of criticism. He does not deny that I had an Annual Holiday card, nor does he, apparently, think it worthy of mention.

(3) I see no reference to what must surely be the object of any Holiday Scheme—namely, to enable the participants in such a scheme to have a holiday during the normal holiday period. It would appear, then, that former operatives in the building trade, being by occupation a hardy lot, prefer their holidays between "October 31 and December in any year." (I quote Mr. Chapman and Clause 7.)

(4) I fail to understand how an operative who is allowed to make a "direct claim" (Clause 7) to the Management Company, because he has left the industry, can be said to have "failed to comply with the provisions of the agreement."

Assuming that such had been the case, surely I would have been entitled to the return of my cards, a form of acknowledgment practised by the Management Company?

Mr. Chapman states that since April to date the Management Company have "returned 25,000 1949 cards and acknowledged 40,000 1948 cards by returning them to the senders." Can it be taken, then, that no attempt was made to enlighten the unfortunate 25,000 as to why their cards were returned?

Surely it would be in the best interests of the building trade to instruct in simple language operatives who, like your correspondent, have found the literature issued by the Management Company as obscure and ambiguous as is Mr. Chapman's defence of the Management Company's tardiness.

R. KAUFMAN.

Brentford, Middx.

Motor Vehicles on Building Sites.

TO THE EDITOR OF *The Builder*.

SIR,—May I draw the attention of your readers to paragraph 87 of the Building (Safety, Health and Welfare) Regulations, 1948, which came into operation on October 1 this year. Here it is laid down that mechanically propelled vehicles and trailers drawn by such vehicles which are owned, hired and operated by a contractor or employer of labour engaged in work on a building site and which are used for conveying workmen, goods or materials for the purpose of that work must:—

(a) Be in an efficient state, in efficient working order and in good repair and not be used in an improper manner;

(b) Be driven or operated only by a trained and competent person over 18 years of age, except that it shall be permissible for the vehicle to be driven or operated by a person over 18 years of age who is under the direct supervision of a qualified person for the purpose of training;

(c) Not be used to carry a load greater than a load specified as a safe load in a certificate or other document which shall have been obtained from the makers or from a competent person and clearly marked on the vehicle;

(d) Not be loaded so as to interfere with the safe driving or operation of the vehicle.

Our legal experts point out that all these requirements have to be observed irrespective of whether or not workmen or goods are being carried on the vehicle at the time. It is also important to observe that this Regulation only applies to the use of vehicles on the building site, so that there is no question of amending the position under the Road Traffic Acts.

H. CECIL ORR.
Chief Public Relations Officer,
Automobile Association.

Fanum House, W.1.

LIGHTNING RESEARCH IN NEW YORK

RECORDINGS TAKEN ON EMPIRE STATE BUILDING

WITH hopes of making new inroads in the battle against man's most elusive foe, American scientists have begun their eighth season of lightning research on the top of New York's tallest skyscraper, the Empire State Building.

Complete photographic records and electrical measurements are now being obtained on all lightning activities striking the National Broadcasting Company's antennæ on top of this building during the summer season.

By addition of new photographic equipment, strategically located, and improvements on sensitive recording devices, the engineers concerned expect to determine the exact currents in each lightning stroke, the length of time each stroke lasts, the intensity of the light produced by the lightning bolt, and the physical shape or path of the stroke.

A heavy copper cable has been introduced, extending through the interior of the Broadcasting Company's antennæ on the top of the building to receive the lightning impulses and carry them to oscillographs in the attic of the Empire State Building, where the currents and time lengths are recorded. Simultaneously, photographs of each stroke are then taken from two different locations at right angles to the building. This gives a three-dimensional view of the stroke and determines its exact length.

An "electronic brain" and automatic corona device, mounted on the top railing of the building, acts as a storm "watchman," turning on all recording equipment as a storm approaches the city or as storm fields form around the building. The operator thus does not need to be on hand immediately to secure data.

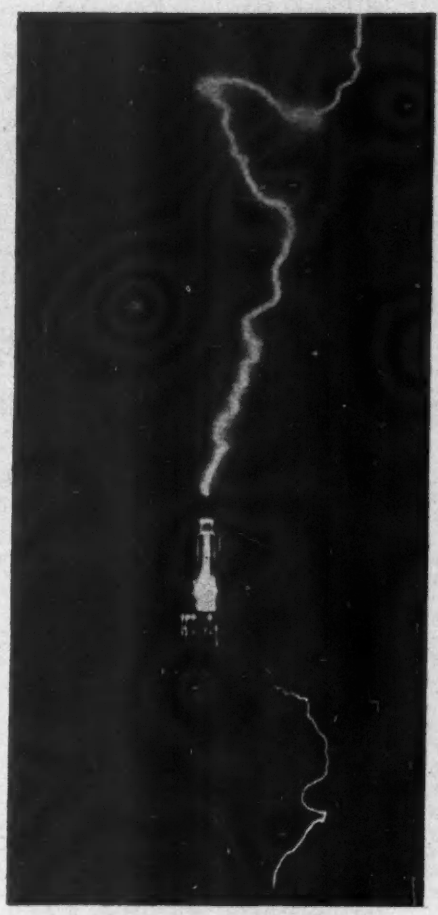
Two manually-operated cameras are set up on the building at 521 Fifth-avenue—one a high-speed camera and the other a slow-speed multiple-aperture camera—and are designed to take up to 20 photographs with a single loading of film. Photographs of the lightning strokes will be used to study the physical characteristics of the strokes and later to measure intensity of the light in the stroke.

A third camera, termed the "oblique camera," is located on top of the Hotel New Yorker, west of the Empire State Building. A slow-speed movie-type instrument taking a frame every minute, the camera photographs each stroke at a right-angle to the exposure field of the two cameras on Fifth-avenue. The motor which runs this camera can be started by a remote-control telephone device.

To determine the opaqueness of the air, the cloudiness caused by rain, smoke or other foreign material, a light of known intensity is reflected by a parabolic mirror to a photo-electric cell at the Fifth-avenue camera location, where the brightness of the light is recorded. This record is used as a comparison, so that the engineer collecting the lightning data may evaluate more accurately the intensity of the lightning stroke.

Central Land Board's Announcement.

Sir Malcolm Eve, K.C., will be making an important announcement on the Central Land Board's work at the meeting of the Town and Country Planning Association which he is addressing on November 15, at 6.15 p.m. This has aroused such interest that it has been decided to hold the meeting in the Central Hall, Westminster.



Lightning striking the Empire State Building, New York.

COMPETITION NEWS

COMBINED COURTS OF LAW, MANCHESTER

A SCHEME is on foot to rebuild all the Courts of Law in the City of Manchester in one group of buildings, which would be the subject of a competition for designs. The history and present position with regard to the project is as follows:—

Arising out of the destruction of the Manchester Assize Courts by enemy action in 1940, it was suggested that, in the rebuilding, the opportunity might be taken to centralise all the various Law Courts in the City. In order to ascertain the views of the bodies concerned, the Lord Mayor called a conference in November, 1941, when it was agreed that it was eminently desirable that the post-war reconstruction plan for the City of Manchester should make provision so as to secure ultimately that all the Courts of Law in the City should be grouped together.

A small sub-committee was appointed to consider and report upon the matter, and they met on several occasions during the subsequent years and considered reports of the City Architect and the City Surveyor. They reported in October, 1945, and in the same month the conference approved the planning proposals submitted by these officers, which provided for a site in the area west of the City Centre, as indicated in the City of Manchester Plan.

The scheme embraced accommodation for the following Courts and various ancillary offices:—

Assize Courts; County Palatine Court; County Courts of Manchester and Salford; Manchester City Quarter Sessions Courts; Manchester City Petty Sessions Courts; Lancaster County Petty Sessions Courts; Salford Hundred Court of Record; and Manchester Coroner's Court

For the purpose of arriving at the site requirements, a tentative scheme was prepared by Mr. G. Noel Hill, F.R.I.B.A., M.T.P.I., then City Architect, and, on the basis of prices prevailing in 1939, the cost of erecting the buildings was estimated to be in the region of £1,100,000. The cost of acquiring the site was estimated by the City Surveyor to be £785,000. This scheme was submitted to the various constituent bodies and at a further conference in June, 1946, it was resolved:—

(1) That, subject to the Manchester City Council being satisfied that the bodies and authorities responsible for the various Courts to be included in the proposed scheme for the grouping of the Courts of Law will undertake to pay an agreed apportionment of the costs and expenses involved, the City Council be requested (a) to purchase the site approved for the grouping of the Courts of Law; and (b) to promote and arrange a competition open to all British architects for the submission of designs for the erection of the Courts of Law.

(2) That an architect to be nominated by the Royal Institute of British Architects, the County Architect of the Lancashire County Council, and the City Architect of Manchester be appointed as assessors to adjudicate upon the designs submitted in the competition.

(3) That the Courts of Law Sub-Committee of this conference be re-appointed (with the addition of representatives of the Bar and the Manchester Law Society) to prepare for the consideration of the conference a scheme and report upon the carrying out of the project, and in consultation with the Manchester City Council to make the necessary arrangements relative to the competition.

The present position is that the City Architect, Mr. Leonard C. Howitt, is preparing schedules of the accommodation requirements preparatory to the scheme proceeding to the competition stage, but no approach to the R.I.B.A. will be made until the Corporation have received the decision of the Minister of Town and Country Planning concerning the Corporation's application in connection with the acquisition of the site.

BOOKS RECEIVED

IN THE NATURE OF MATERIALS—THE BUILDINGS OF FRANK LLOYD WRIGHT. By Henry-Russell Hitchcock. (London: Paul Elek Publishers Ltd.) Price 35s.

FLOORING MATERIALS. By F. R. S. Yorke and C. R. Fowkes. (London: Faber and Faber Ltd.) Price 42s.

BUILDERS' MATERIALS. By Bernard H. Knight and Rena G. Knight. (London: Edward Arnold and Co.) Price 21s.

ELEMENTS OF QUANTITY SURVEYING. By A. J. Willis. (London: Crosby Lockwood and Son, Ltd.) Price 15s.

MORE ADVANCED QUANTITY SURVEYING. By A. J. Willis. (London: Crosby Lockwood and Son, Ltd.) Price 30s.

NOTES ON SOLDERING. By W. R. Lewis, B.Sc. (London.) (Tin Research Institute, Fraser-road, Greenford, Middx.) Free of charge.

PLUMBED PROFILES IN HOUSE BUILDING

By J. F. EDEN, B.Sc., A.M.I.Mech.E. (of the Chief Scientific Adviser's Division, Ministry of Works).

IT has been shown by the Building Research Station ("Methods of Bricklaying," D. G. R. Bonnell, D. W. Aldred, and L. W. Baldwin) that the operations of plumbing and levelling while bricklaying occupy about 15 per cent. of the bricklayer's time. By setting up plumbed profiles at the corners before the brickwork is commenced, a great proportion of this time can be saved, and, as will be shown, it is possible to secure further savings.

This principle has been extensively used over a long period of time on the Continent in countries where bricklaying rates are higher than in Great Britain, and it is difficult to understand why more use has not been made of it in this country. The fact that such devices are so common in other countries should be sufficient, even if no further evidence were available, to warrant serious attention being given to them by builders here.

The comparative measurements which have been made by the Ministry of Works, while not conclusive on account of their small scale and, in some cases, special conditions, tend to show that much greater savings can be made by using plumbed profiles than a saving in time in plumbing and levelling alone. These savings accrue from a number of sources, as detailed below.

Savings.

(a) To the bricklayer;—

(i) A saving in time on erecting lines;

(ii) Avoidance of the necessity of building up corners;

(iii) Avoidance of the necessity of laying bricks some distance from the line;

(iv) Reduction of all bricklaying in the walls to a methodical progress in straight lines round the block;

(v) Avoidance of continually altering the height of work; and

(vi) Less danger of running out of bricks through bad servicing.

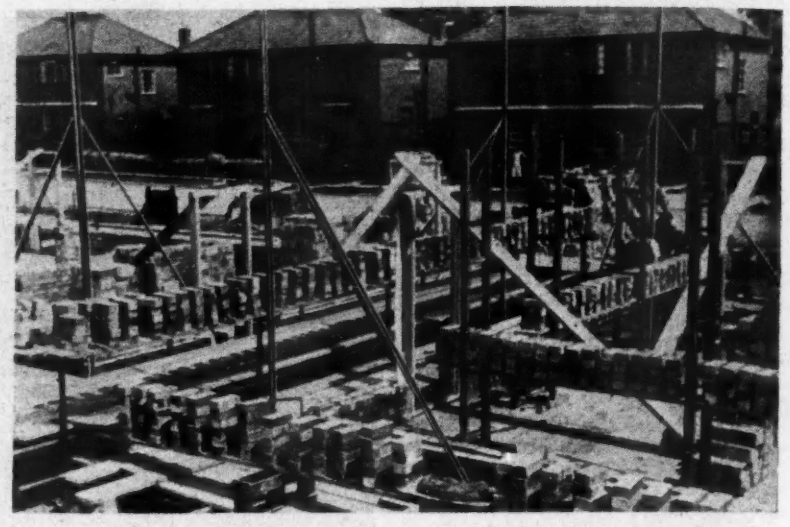


Fig. 1.—Profiles as used by John Laing and Son, Ltd. The variety of methods of providing platforms for materials is also of interest.

(b) To the bricklayer's labourer:—

(i) No special knowledge is required of the labourer to know where to place the bricks for the bricklayer; and

(ii) It is easier for him to keep out of the bricklayer's way, particularly if, as is the case in Holland, the bricklayer knocks up his own mortar.

(c) In general organisation:—

(i) The work is generally more rhythmic and supervision is easier; and

(ii) It becomes easier to make use of simple forms of platform to elevate the bricklayer's materials to a height corresponding to his work, and to make effective use of shorter scaffold lifts.

The use of profiles is, in fact, the basis on which a number of other ideas can be developed.

The simpler systems of plumbed profiles which are described below could be made up without any great difficulty by any builder at little cost. It is suggested that they are well worth a trial.

Design of Simple Plumbed Profiles.

The only essential point of design in the simplest forms of plumbed profiles is to ensure that the uprights are plumb during the course of building. For the normal type of semi-detached villa the uprights will need to be at least 18 ft. high. Probably the simplest means of ensuring that these uprights are plumb as bricklaying proceeds is that adopted by Messrs. John Laing and Son, Ltd., and illustrated in Figs. 1 and 2. When the uprights are first set up they are plumbed and stayed by diagonals and right angles which are nailed into boards pegged to the ground, and fixed to the uprights at about 10 ft. in height. As soon as a few courses have been built, and as early as possible, a bracket is built into brickwork to improve stability and, as work proceeds and the height of the walls grows, more brackets are built in every few feet to maintain the uprights plumb when the stays are removed. This method involves a minimum of material and is quite satisfactory. The use of overhead bracing or heavy base weights is unnecessary. In the Laing design, angle iron is used for the uprights, and brackets carrying the lines are clamped by thumbscrews to these uprights. Lines are provided for both leaves of brickwork and the best results are obtained when bricklaying is carried out from the inside and the outside at the same time. The bricklayer can be provided with a gauge rod on which the courses are notched, and from which the height of each course can be marked with chalk on the plumbed uprights. This enables the lines to be set with speed and precision. Some other designs incorporate notches or holes cut in the plumbed uprights to represent the height of each course. This involves the setting up of the uprights on a level datum, and means that the equipment is limited in use to one thickness of brick.

Fig. 2.—Plumbed standards of Laing's jig, showing adjustable brackets carrying the bricklayers' lines.

More Elaborate Systems.

A number of inventors have elaborated upon the simple systems described above and some of these designs are worthy of mention.

In the Langbridge system, the two lines are replaced by a batten working in the cavity, which prevents mortar dropping in. Bricks are laid against the batten at great speed, and the batten projects at a sufficient height above the course already laid as to form a guide for the thickness of the mortar bed. The potentialities of this jig have not yet been fully explored. The inventor claims that, as the batten seals the cavity, mortar can be spread with great speed over two leaves at once.

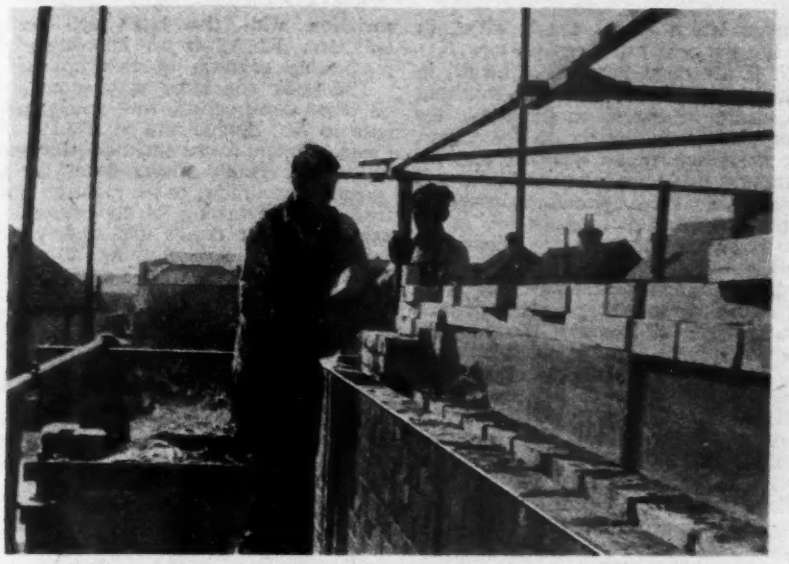


Fig. 3.—Elliott's jig, showing the laying of the inner leaf of an 11-in. cavity wall, with the internal rendering against the "fascia board."

It is clear that irregularities in the face of the brickwork must be expected owing to variations in the width of bricks. It is claimed that these results are not unpleasing, but that if a fair outer face is required, the outer leaf can be built to a line attached to brackets on the batten and moving up with it. Window frames, door jambs etc., are built in the outer leaf to avoid projection in the cavity which would foul the batten. Where it is necessary for these frames to project into the cavity, the inventor advocates building them in the outer leaf and pushing them back afterwards.

In the Elliott jig, illustrated in Figs. 3 and 4, there are plumbed uprights every 10 or 12 feet which carry, in addition to lines for the outer leaf of the cavity walls, a "fascia board," about three courses deep, for the inner walls. The bricks of the inner leaf are laid about ½ in. clear of this board and mortar is slopped into this gap when the bed is spread. The fascia board is moved up every three courses, leaving a coat of mortar on the inner face of the walls which takes the place of a backing coat of plaster. The Ministry has observed the building of a pair of houses with this equipment and recorded an average overall bricklaying rate of over 150 per bricklayer/hour.

In the Warry building jig, illustrated in Figs. 5 and 6, an overhead adjustable template, set to suit the shape of the building, is made to climb vertical columns to any desired height as the building proceeds. This carries a temporary roof, covering both builders and workers. The vertical columns are also plumbed profiles drilled with holes to suit the courses of brickwork and engaging the simplest form of line bracket. On a block observed by the Ministry the average rate of bricklaying over the whole block was 120 per bricklayer/hour.

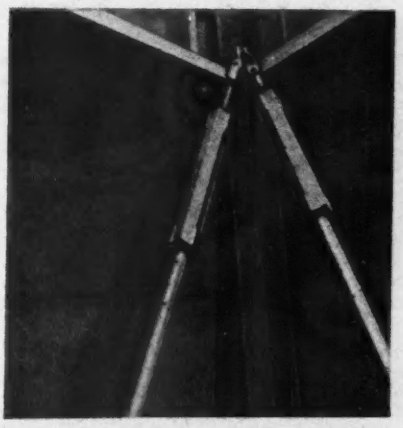


Fig. 4.—The bracing of the standards of Elliott's jig, and the internal rendering which is executed as the bricklaying proceeds.

(Crown copyright reserved.)

St. Katharine's Hospital, Regent's Park.

ONE of the finest mediæval community buildings in London (writes H.V.M.R.) was St. Katharine's Hospital (for the aged) by the Tower, which survived the Reformation. (See O.S. 5 ft. map for sites of buildings.) When this was demolished, 1825 ff., to make room for the docks (ultimately finished 1828 or 29), the present building, consisting of the chapel and houses surrounding the precinct on the N.E. side of the Park, was built *c.* 1827, Ambrose Poynter being the architect, and many old fittings were transferred. The patron, Queen Mary, and Chapter have now decided to move the College back to the East End, where it will serve St. James, Ratcliff, and minister to the aged (see *The Times*, June 30 last, also *Children's Newspaper*, July 17). Most of the fittings will be moved back, though a few may go elsewhere, and the existing buildings will be occupied by the Danish Church. A party from the King's Weigh House Church, W.1, which originated in a secession from the hospital in 1662, visited the hospital recently (following a tour of the sites of the original hospital and weigh-houses in 1943) and were kindly received by Mr. J. D. Knight, the curator and former organist, who gave an historical address. The chapel, which was bomb-damaged, is already being dismantled and cannot be entered, but some treasures were seen in the Chapter House; most are illustrated in the R.C.H.M., *West London*, text, p. 88 and var. pls., and one of the stalls in Godfrey, *Hist. of Arch. in London*, 1911, fig. p. 119. It was thought that this would be the last party to visit the chapel.

Figs. 5 and 6.—Warry's jig, showing the manner in which the lines are carried on the plumbed standards.

SOCIETIES AND INSTITUTIONS

R.I.B.A.

The following were elected members as shown of the Royal Institute of British Architects at a meeting held on October 19 :

As Hon. Associate.—The Very Rev. Frederick William Dwelly, M.A., D.D., Dean of Liverpool.

As Hon. Corresponding Member.—Douglas William Orr, President of the American Institute of Architects (Connecticut, U.S.A.).

As Fellows.—A. G. Bullen (Liverpool) ; M. J. H. Bunney, M.A. (Oxon), A.A.Dip. (Hons.) (Norwich); Prof. W. G. Holford, M.A., M.T.P.I. (Liverpool) ; E. Mayorcas (London) ; R. G. Morgan, M.C., F.R.I.C.S., Dip. T.P. (Worsley) ; J. Needham, Dip. Arch. (Dundee); Keng Siang Ng (Singapore) ; P. F. Nightingale (Banstead); J. B. Parkin, B.Arch. (Toronto) ; G. P. Stainsby (Stockton-on-Tees) ; G. T. Tait (London) ; Lt.-Col. J. P. Taylor, M.B.E. (Hull) ; W. L. Clunie (Sheffield) ; N. Green (Westcliff-on-Sea) ; E. E. Pettengell (London) ; B. Chippindale (Ilkley).

As Associates.— L. Balfour-Paul (Tynehead) ; P. H. P. Bennett, M.A. (London) ; M. G. Bhogle (Bombay) ; M. H. Brashier (London) ; K. A. Brewster (Norwich) ; D. H. Brown (Edgware) ; A. C. Cooper (Miss) (London) ; G. L. Dale (Epping) ; K. M. H. Eves (Miss) (London) ; A. F. Farebrother, B.A., Hons. Arch. (Cheshire) ; W. Feit (S. Rhodesia) ; R. K. Fowler (Lower Willingdon) ; F. H. Frost (Bristol) ; E. A. Gardner (London) ; R. P. H. Gillett (London) ; P. J. V. Gordon (Chislehurst) ; K. E. Gow (Durban, S. Africa) ; R. P. H. Gurling (Taunton) ; R. W. Harvey (Nuneaton) ; H. S. Haynes (Yeovil) ; P. R. Hogbin (Kerry, Eire) ; G. F. Holden (Preston) ; J. E. Holmes (Miss) (London) ; J. C. L. Iredell (Surrey) ; E. W. Jolly (Norwich) ; C. Laird (Southend-on-Sea) ; B. F. Leach (Eastbourne) ; T. P. L. Le Briero (Leicester) ; W. T. Leighton (Perth, W. Australia) ; D. R. Lennon (Sydney, N.S.W.) ; W. S. Lewis (London) ; L. Lipski, A.A.Dip. (London) ; R. Lockyer (London) ; B. G. Ludlow, B.Arch.T. (Toronto) ; W. A. Martin (London) ; L. Michaels, M.A. (Cantab) (London) ; F. H. Newman (Wellington, N.Z.) ; E. M. Nosworthy (Miss), B.Arch. (Lindfield, N.S.W.) ; J. W. Paterson (Kingston-upon-Thames) ; J. R. Pearce (London) ; S. M. Phillips (Miss) (London) ; R. Pianca (London) ; A. M. Quickenden (London) ; J. E. Ralph, M.C. (London) ; J. B. Redmond (Canberra A.C.T., Aust.) ; R. Rosner (Stanmore) ; E. B. Rowland (S. Rhodesia) ; M. H. Russell, M.C. (Bromley) ; K. M. Scott, M.C. (Hove) ; H. D. Searl (Queensland, Aust.); G. G. Shenstone (Leigh-on-Sea); J. E Simpson (Sunderland) ; P. Solomon (Manchester) ; B. J. Sydenham (Miss) (Woking) ; B. S. Tait (Killara, N.S.W.) ; S. T. Tomlinson (Exeter) ; V. A. Tregoning (Torquay) ; B. A. Tribe (Mrs.) (London) ; A. M. Tribich (London); K. Turner, Dip. Arch. (Batley) ; C. Walker (Heckmondwike) ; MacL. S. Wallace (West Wittering) ; A. F. Ward (Oxford) ; G. E. Webster (Binstead, I.o.W.) ; H. J. Williams (London) ; M. Winstanley (Miss), B.Arch. (London).

As Licentiates.—H. H. Bull (Chelsfield) ; A. E. Colgrave (Bamford) ; G. Elliott (London) ; E. J. Evans (Walton-on-Thames) ; A. J. R. Green (Stourbridge) ; W. J. L. Horsman (Wallington) ; A. L. Linford (Tamworth).

SOUTH-EASTERN SOCIETY OF ARCHITECTS

Mr. Michael Waterhouse, M.C., B.A., P.R.I.B.A., presented the awards to successful students in the annual competitions sponsored by the South-Eastern Society of Architects at an exhibition of the students' work held in the Henry Jarvis Room at the R.I.B.A., on October 28.

The President of the S.E.S.A., Mr. Arthur J. Stedman, F.R.I.B.A., who presided, said that it was a notable occasion for the Society since it was the first time such a gathering had been held. The high standard of the work on view reflected much credit on the students and on the schools, most of them not yet recognised for exemption from the Institute's examinations. The exhibition had been made possible by the generosity of the Institute in allowing the use of its rooms for the jurying, the exhibition and the present meeting.

The student class of members was the nursery of the future and all that could be done to foster enthusiasm in it would pay a handsome dividend. For the students themselves there was in voluntary competition work a direct gain in terms of a discipline which would amply offset in later life the denial of pleasures now.

Mr. S. Rowland Pierce, F.R.I.B.A., in a criticism of the students' work, said that with regard to design, on the whole the junior work was superior to the senior, since it showed greater evidence that the programme had been fully considered and digested. He drew attention particularly to the need to assess fundamentals at the very beginning and to try alternative solutions. With reference to the sketches he made the point that competition work such as this was specially gratifying because it showed that willingness to study and draw which is the essential of any architectural success. He recommended the value of sketching in a diversity of media and particularly in colour, which helped to develop an awareness of the nature and character of the forms and materials in which an architect worked.

The President, Mr. Michael Waterhouse, presented the prizes. He addressed himself to the losers, who, he said, had probably worked harder than the winners, who had the advantage of greater natural skill and perhaps luck. Luck was an element not to be ignored any more in architectural competition work than in cricket.

The prizewinners were as follows :—Senior Design–A Rowing Club : 1st, Mr. S. Dray, Canterbury ; 2nd, Mr. C. E. Wright, Canterbury.

Junior Design–A Warden's Office for a National Park: 1st, Mr. B. Webb, Rochester ; 2nd (tie), Mr. M. J. Blee, Brighton, and Mr. J. H. Bennett, Guildford.

Senior Measured Drawing: 1st, Mr. J. S. Foster, Canterbury ; 2nd, Mr. P. Brown, Canterbury.

Junior Measured Drawing: 1st, Mr. A. C. Watts, Rochester; 2nd, Mr. I. Beresford, Rochester, and (additional) Mr. P. Vallis, Rochester.

Inter Testimonies Prize: Mr. D. Vane, Canterbury.

Finals Testimony Prize: Mr. C. E. Wright, Canterbury.

Sketching Prize: Mr. S. Dray, Canterbury.

BOOK REVIEW

Cathedrals and How They Were Built. By the Very Reverend D. H. S. Cranage, Litt.D., F.S.A., Hon. A.R.I.B.A. (Cambridge: At the University Press.) Price 8s. 6d. net.

In this small book, which he dedicates to his old friend Mr. W. H. Ansell, P-P.R.I.B.A., Dr. Cranage, formerly Dean of Norwich and an acknowledged authority on Gothic architecture, deals with the evolution of cathedrals as monuments of art and engineering skill. The study is confined mainly to English mediæval Gothic, with glances at French influence as well as at Byzantine and Renaissance work. A clear account is given of Gothic construction, in which the author shows in particular the development of vaulting stage by stage from the comparatively simple Norman system to the rich complexity of the fan vault as seen in Henry VII's Chapel at Westminster. The text is illustrated by nineteen drawings, mainly diagrammatic, from various authoritative sources, and there are twenty-two plates of half-tone illustrations, photographs and drawings. The book is chiefly intended to help the layman to an intelligent understanding of our cathedrals and is clearly and simply written without unnecessary technicalities, though a few unclarified words—e.g., groin, conoidal, extrados, ashlar, centering, voussoir, and slype (mis-spelt "sylpe" on the plan of Winchester Cathedral on page 24)—may send many ordinary readers reaching for their dictionaries. The serious student of architecture will, however, find much to interest and stimulate him. For example, Dr. Cranage, like many thoughtful architects, has pondered long over the almost universal and unsatisfactory practice of covering a vaulted church with a roof of wood and lead. His scheme to avoid this, devised in association with the late Mr. George Hubbard, F.S.A., is an interesting and practicable solution of this problem.

The book concludes with some notes on dome construction, with special reference to Sta. Sophia and St. Paul's. Dr. Cranage refers to the threats to the stability of St. Paul's arising from the use of rubble as a filling to the great piers and from the weakening of the ground by excavations for drains and underground railways, but says nothing about the defects inherent in Wren's design of the dome itself—i.e., the unequal loading of the external and internal drums, causing intermediate fractures and the shearing off of the counterposts, the tendency to the overturning of the piers, and other structural weaknesses, now corrected by stout bracing rods of stainless steel. These and other devices to secure the stability of the cathedral are clearly shown in the fine model, now in St. Paul's, which was made at the time of the great scheme of conservation completed a few years ago. Dr. Cranage would add to the interest of his admirable little book if in the further edition which will assuredly be called for he could find space for a brief description of this vital and most successful work. G. J. H.

CONSTRUCTION PROGRESS IN U.S.A.

NEED FOR CO-OPERATION

The President of the American Institute of Architects, Mr. Douglas W. Orr, has called upon contractors and architects to join forces in clearing away "the road-blocks on the path to construction progress" in America.

Writing in *The Constructor*, annual directory of the Associated General Contractors of America, Mr. Orr points out that both the architect and the contractor are indispensable to future progress if America is to make a sizeable dent in the backlog of residential, school and industrial construction. He continues: "Not only is co-operation needed—indeed it is a prime essential—but there must be co-ordination of effort by the architect, the engineer, general contractor, manufacturers and distributors of materials, sub-contractors and a myriad of others.

"The A.I.A. is working assiduously on many improvements; simplification of specifications, more simplified practices, development of newer techniques, etc. But such investigations are not, in and of themselves, sufficient. If we are to achieve success it will be necessary to cut down the cost of distribution of building materials—a major factor in the economics of building.

"We must work unceasingly at the elimination and modification of antiquated building codes which serve to hamper rather than enhance progress. Educational efforts will have to be directed to the removal of prejudices against certain types of buildings which are now coming into their own because of technological and architectural advances. There is no room in the science of building for blind reliance on past experience.

"On the human side of the ledger," writes Mr. Orr, "we should step up the campaign to provide more trained mechanics and eliminate the unnecessary waste of jurisdictional disputes. To give the men who work the greatest possible incentive and desire to perform a job well, the building industry must pay attention to the possibility of offering more all the year round employment. A happy labour force and a skilled one will be efficient beyond our wildest dreams."

Public Health and Municipal Engineering Exhibition

A REVIEW OF EXHIBITS

THE Public Health and Municipal Engineering Exhibition will take place at Olympia (Grand and National Halls), London, from Monday next until November 20. Notes on the principal exhibits are given below. The Exhibition will be open daily from 10.30 a.m. to 6 p.m.

MECHANICAL PLANT

Portable and stationary compressors are manufactured by AIR PUMPS, LTD., and marketed through the head sales office of Armstrong Whitworth and Co. (Pneumatic Tools) Ltd. The air compressors are of the latest two-stage air flow cooled design. This stand is being shared with Armstrong Whitworth and Co., Ltd. (Stand 60.)

E. P. ALLAM AND CO., LTD., are displaying vibrating equipment, "Planet" platform hoists and concrete elevating plant and a new type of hydraulic bar cutting machine. The vibrating equipment consists of modern plant for the consolidation of concrete in mass and reinforced concrete structures, for the vibration of concrete roads and for the manufacture of pre-cast concrete products. Vibrators for fitting to hoppers and chutes are also exhibited.

For mass and reinforced concrete structures, Allam flexible drive internal vibrators, powered by petrol engines or electric motors, may be used. Vibrating tampers are of special use in concrete road construction. They are fitted either with electric vibrators or self-contained petrol-driven units. For pre-cast concrete products, vibrating tables and external vibrators are manufactured. "Planet" hoists and concrete elevating plant are driven by electric motors or petrol or diesel engines. The hydraulic bar cutter cuts mild steel bars up to 1¼ in. diameter. (Stand 116.)

JOHN ALLEN AND SONS (OXFORD) LTD. are exhibiting their Model 16/60 trencher, crawler mounted, which is capable of cutting trenches from 16 in. to 60 in. in width and down to 14 ft. in depth for sewers and large gas and water mains. It is fitted with Vulcan-Sinclair fluid coupling. (Stand 129.) Other models include 12/18 trencher, crawler mounted, capable of cutting trenches from 12 in. to 18 in. wide and 6 ft. deep for electric cables, gas and water mains, land drains, etc.; super-duty shovel/crane, lorry mounted, fitted with shovel boom; Sheepsfoot roller for consolidation work on earth embankments, etc.; Allen-Oxford grader for use behind a small tractor for light levelling work; self-propelled motor scythe for cutting rough grass, tangled growths, etc.; hedge trimming attachment for use with the motor scythe; and road roller wheel repaired by steel plating. (Stand 154.)

The medium and lower powered diesel and petrol engines which ASSOCIATED BRITISH OIL ENGINES, LTD., are showing have been selected for their special appeal to public works contractors, builders, municipal authorities and other power users requiring small compact prime movers for their machinery. Among the lower powered engines displayed are the new water-cooled Petter vertical single- and twin-cylinder diesel engines (3 to 10 h.p.) and the air-cooled Petter petrol or petrol-paraffin engines (1½ to 10 h.p.). The medium powered engines are represented by the Petter-Fielding horizontal diesel engine which is built in three sizes—the "EH" (21 and 27 h.p.), the "FH" (32 and 40 h.p.) and the "2FH" (64 and 80 h.p.). Also included among the exhibits is the self-contained stand-by emergency 55 kw. diesel-electric generating set comprising a McLaren "MR4" four-cylinder 88 h.p. vertical diesel engine coupled to Brush 55 kw. alternator with control gear and small compressor for starting, all mounted on a single bed-plate. (Stand 44.)

The pride of place on the stand of AVELING-BARFORD, LTD., is given to one of the new "GD" series diesel road rollers, fitted with a totally enclosed driving cab. Two other rollers of the "G" series are exhibited. One is a type "GB" diesel roller, working weight 2½ tons, and the other a 30-cwt. petrol-engined footpath roller. To complete the roller display is a Type "T" steam roller, weighing, as equipped, approximately 8½ tons. Earth-moving plant is represented by a 4½ cu. yd. diesel shuttle dumper, a 1 cu. yd. dumper, a "Dumpling" and a calfdozer. Concrete road making plant is represented by a modern vibratory concrete surfacing finisher. Finally, there is a trench-cutting machine. This is designed to cut trenches for gas, water, electricity and telephone services, where the depth of trench does not exceed 3 ft. 6 in. The width is either 11 in. or 18 in. (Stand 132.)

Trench-cutting Machine (Aveling-Barford)

A display comprising machines representative of a wide range of ground clearing, earth moving and construction equipment is shown by BLAW KNOX, LTD. It includes a concrete pump; 3½T tilting mixer; a trailer mixer; 10S and 14S standard concrete mixers; a mobile junior weighbatcher; 2½ yd. roller gate bucket; set of Blawform steel shuttering, 8 in., 6 in. and flexible roadforms; Shervick tractor fitted with treedozer arm; stumper and Mark "F" power control unit; F.D.E. Cletrac tractor with hydraulic angledozer and new "J" type winch, and 8 yd. scraper. In addition, visitors may inspect a concrete finisher, concrete spreader, Rex Moto-Mixer, Mark 11 root cutter, R.100 ripper and a root rake. A special feature is the Blaw Knox concrete pump—the modern method of placing concrete. (Stand 146.)

Examples of the products of BROOM AND WADE LTD., include the following:—

Four portable air compressors with capacities ranging from 60 to 250 cu. ft. free air per minute at 100 lb. per square inch pressure. Several stationary air compressors are on view, ranging from a small air-cooled rotary low pressure type to a type TS1, two-stage, double acting machine having a capacity of 320 cu. ft. free air per minute at 100 lb. per square inch pressure. Various pneumatic tools are exhibited, including concrete breakers, rammers, pneumatic picks and clay spades, together with hand-held and tripod-mounted rock drills, "Broomwade" air-operated sump pumps, riveting and chipping hammers, drills, wood borers, grinders and vibrators will also be represented, together with other tools for general use. Visitors also have an opportunity of examining a six-cylinder crankless air motor unit which develops 6 b.h.p. at 1,200 r.p.m., a new design of air-operated winch incorporating the motor, and the latest version of the self-priming petrol-driven centrifugal pump Type SP2. (Stand 117.)

A new machine, together with a new attachment of particular interest to builders and contractors, is introduced at the stand of CHASESIDE ENGINEERING CO., LTD. The new machine is the one cubic yard mechanical shovel, a development of the ½ and ¾ cubic yard machines. It was primarily evolved for snow clearing in Canada. Exacting tests, however, showed the machine to be a suitable successor to the ¾ cubic yard for the handling of coal, coke or other comparatively light materials. It is claimed that this machine will reduce the low all-in cost figure achieved by users of the ¾ cubic yard Chaseside shovel, and that the output invariably possible with the smaller machine will be proportionately increased. Also displayed is the new brick-stacker unit which was evolved by the Field Test unit of the Ministry of Works, and is now introduced after exhaustive tests under practical conditions in the building industry. It is claimed that by means of this attachment to the Chaseside mechanical shovel 1,000 bricks can be placed on the working site or on

New Brick-stacker Unit (Chaseside Eng. Co.)

scaffolding adjacent to the bricklayers in one hour by three men—one man at the brick stack, one on the scaffolding and one machine operator. Loads of 100 bricks at a time can be placed accurately on the building from ground level up to a height of 20 feet. It can be used for carrying and loading timber and concrete lintels, etc., up to a height of 20 feet. (Stand 123.)

THE CLIMAX ROCK DRILL AND ENGINEERING WORKS, LTD., show examples of portable and stationary compressors, a wagon drill, scaling hammers, coal picks, jackhammers, sand rammers, riveters, trench pumps and many other pneumatic tools. (Stand 127.)

The "600" Group of Companies are represented by GEORGE COHEN SONS AND CO., LTD. On exhibition are three Jones mobile cranes, and a comprehensive range of contractors' tools and equipment, together with hand and electrically operated lifting gear can also be seen. The Jones KL44 mobile crane is the latest model in the Jones crane range. It has a maximum lifting capacity of 4 tons, combined with easy manœuvrability and full circle slewing and gives a useful working potential. Grabs are easily fitted if required. The Jones KL22 mobile crane is a smaller model of the KL44. It is capable of full circle slewing on a steel race-path with hook rollers, adjustable for wear, and giving even distribution of loads within the structure of the machine. It has a high speed ratio for normal travelling with the load under all conditions of service. The Jones KL15 mobile crane represents a new departure in crane construction, combining working mobility with the lightweight compactness hitherto only associated with portable cranes. This can either hoist and slew or hoist and travel under its own power. (Stand 47.)

A full range of Black and Decker portable electric tools is being shown by E. R. COLE, LTD., who are also displaying "Secomak" and "Barlow-Whitney" blowing, suction and industrial heating equipment for electrical maintenance, and the "Econocut" brick and tile cutter, which will cut refractory and building bricks and tiles. Full information is also available on the company's plant hire service, including rollers, compressors, concrete mixers, pumps, rammers, etc. (Stand 107.)

Two air compressors are included in the exhibits of the CONSOLIDATED PNEUMATIC TOOL CO., LTD. These are representative of the full range of portable and stationary compressors, and one of these is in operation to provide a compressed air supply on the stand. Visitors may thus see any of the pneumatic tools demonstrated. Universal electric tools are also being demonstrated, and a frequency changer is being installed to provide the 200 cycle current supply for demonstrating Hicycle electric tools. (Stand 138.)

The Le Tourneau Tournadozer, a high-speed, rubber-tyred dozer, driving on all four wheels, is making its first appearance in this country at the stand of ELTEE EQUIPMENTS, LTD. It is fitted with a six-cylinder Buda diesel engine, electrically started, and developing 180 b.h.p. at 1,800 r.p.m. It can traverse paved surfaces, railway lines and other finished work without detriment. (Stands 42 and 43.)

FARM FACILITIES, LTD., are displaying Baromix mixers for concrete, mortar, plaster, etc., in three models; Clifford rotary cultivators, including the standard model with 400-c.c. single-cylinder four-stroke petrol engine, working width of 16 in. to 22 in. as required, and depth of tilth 3 in. to 9 in., adjustable by sliding gauge, and the Inter-row hoe, with rotary tines or fixed hoes, powered by 1-h.p. four-stroke petrol engine, working width 11 in. Also on view are the Gunsmith three-wheel riding tractor, an "all-purpose" horticultural machine, powered by a four-cylinder air-cooled petrol engine; unit attached implements; and the Maxim P.U.P., a portable universal pneumatic unit on rubber wheels, powered by a 1-h.p. four-stroke petrol engine. This can be used for tyre inflation, fruit spraying, greasing, blow-gun operation, paint spraying, and other jobs requiring compressed air. (Stand 73.)

A variety of machines for the production of crushed, screened, washed and mixed aggregate for road-making and contracting work are on view on the stand of GOODWIN, BARSBY AND CO., LTD. The principal feature is the semi-portable 10-ton-plus asphalt plant in two units, consisting of a dryer section, oil fired, with feeder elevator, hot elevator and filler elevator, made to fold back for mobility, and a mixed section with screens, hoppers, batching and weighing gear and double-shaft mixer. The second major exhibit is the portable "Cornwall" crushing and granulating plant. Two other stone-breakers are exhibited. The concrete mixer range is limited to two exhibits: a 10/7 Master-Trailer mixer and a 3½-ton two-wheel end loading machine on pneumatic tyres, with brakes, built to B.S.S. (Stand 31.)

The two main sections of the exhibit of THOMAS GREEN AND SONS, LTD., show road rollers and grass-cutting equipment. (Stand 125.)

A number of Benjo power rammers for trench or ground consolidation are displayed by B. JOHNSON AND SON. These machines are fitted with magneto ignition and automatic lubrication, which is operated by suction, ensuring a regular supply of oil to the internal working parts of the machine while in use. Another patented feature is the rubber block fitted on the foot to absorb shock after the blow has been given. (Stand 19.)

WILLIAM JONES, LTD., manufacturers and suppliers of railway material, contractors' plant, and mechanical handling equipment, are exhibiting a number of items illustrative of their range, including the Priestman "Panther" Universal crawler track unit which will unload all friable materials from common user railway wagons; light railway tipping wagons and rolling stock for special purposes; the Dobbins of 14/10, 10/7 and 7/5 cu. ft.; R-A portable conveyors; Frew Green line wire ropes, and a selection of contractors' tools. (Stand 83.)

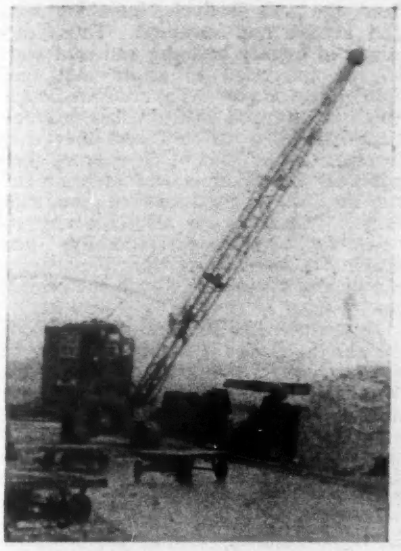
H. LEVERTON AND CO., LTD., have been been importers and distributors of the Caterpillar Tractor Company's range of products, including tractors, scrapers, dozers, engines, etc., for 15 years. The machines exhibited on their stand are a "Caterpillar" D7 80-h.p. diesel tractor, known in the public works field for its earth-moving capabilities on airfields, opencast coal sites, etc.; a new Birtley 7A hydraulic dozer, now being produced in this country under "Caterpillar" licence and to "Caterpillar" specifications, both in design and material; a new "Caterpillar" No. 70 open-bowl scraper, incorporating recent features in scraper development. (Stand 149.)

Exhibits of the LINER CONCRETE MACHINERY CO., LTD., are as follows: "Liner-Junior" mixer, 3½T size, on four steel road wheels, and trailer type for fast towing. Also made in 5T size. "Liner-Cloverleaf" tilting-drum mixer, 7T size, with loading hopper, all-gear drive (no chains), ball-bearings throughout, grease-gun lubrication, patented hopper control. Also made in 5T size. "Liner" non-tilt mixer, 10NT size, drum rotates on and is driven by rubber-tyred rollers. Also made in 7NT size. "Rolpanit" mixer No. 1a size, 4-ft. 6-in. diameter pan, portable model, engine-driven, made by the pioneers of roller pan mixers. Also made in 5-ft. 6-in. size, portable, and larger sizes fixed type, with and without power batch loader. Combination slab, block and brick machine makes slabs, bricks, hollow blocks and rock-faced blocks. "Portasaw," No. 4 size, portable engine-driven saw-bench, rips and cross-cuts up to 9 in. with attachments for angle bevelling and boring. Also made in No. 3 size for 7-in. cut. "Chain Portasaw," petrol engine-driven, 3 ft. 3 in. size. Also made in 4 ft. 1 in. size. "Altex" variable amplitude electric vibrator, which can be fixed to shuttering or moulds for mass concrete. Also displayed are flag, kerb, radius kerb, and garden edging moulds. (Stand 118.)

The latest product of MARSHALL, SONS AND CO., LTD., the Type RD Series 2 diesel-engined road roller, whilst new in its outward appearance, retains many of the original features of its type. The transmission includes two large diameter reversing clutches capable of carrying heavy loads and giving smooth change of direction, a foot-operated brake, a differential gear enclosed in an oil-bath gear case with driving position lock and final drive pinions. All the gears are machine cut, including the drive pinions, and the driving ring bolted to the inside of each hind roll. The power unit chosen for the new series is the Perkins industrial four-cylinder diesel engine. Another exhibit is the well-known Field-Marshall diesel tractor. Designed in the first instance to meet the demand for a tractor for agricultural purposes, it has also many uses for public authorities and public works contractors. In view of the urgent need for these tractors on food production, deliveries for other purposes are consequently limited. It has, however, been possible to supply a few to public authorities for hauling gritting machines and snow ploughs. A further adaptation is as a shunting tractor on general industrial work. (Stand 130.)

The central feature of the exhibit of MILLARS' MACHINERY CO., LTD., is a new mobile asphalt and tarmacadam plant of 10 tons per hour capacity. This plant is a dual-purpose high- and low-temperature drying and mixing plant for the production of hot asphalt and low-temperature tar and bituminous macadams, cold asphalts and veneer carpets. Drying temperatures may be as low as 100 deg. F. or as high as 450 deg. F., so that the

"Vanguard" 10-NT Concrete-Mixer. (Millars' Machinery Co., Ltd.)



2-ton Crawler Crane (type NMC). (R. H. Neal and Co., Ltd.)

machine covers the requirements of contractors and suppliers of coated gravel, stone and sand. The plant consists of two main units—dryer and mixer—each mounted on its own pneumatic-tyred chassis for transport. Lifting gear is incorporated. Aggregate feed hopper, cyclone dust reflector, filler feed hopper and ducting are carried in the towing vehicles. Power for the complete plant is provided by a 4-cylinder diesel engine, mounted on the drying unit. Two Millars' concrete mixers are shown, the "Anson" 7/NT and the "Vanguard" 10/NT. Both are built to B.S.S. 1306, and are totally enclosed. Also on view is a working model of Millars' Wellpoint dewatering system. (Stand 57.)

MOTOR RAIL, LTD., show a 2½-ton 20/28-b.h.p. diesel locomotive. This was originally produced during the 1914-18 war and supplied to the War Office. Since then, whilst many improvements have been incorporated, the original Simplex transverse layout of the engine, clutch and gearbox has been maintained. It was found that this arrangement made all parts accessible. It is supplied in rail gauges from 18 to 30 inches. A 5-ton 32/42-b.h.p. diesel locomotive is also on view. This is similar in design and appearance. Its engine develops 32 b.h.p. at 1,000 r.p.m. It is produced in rail gauges from 18 in. to 36 in. The front control 3-cu. yd. diesel dumper is designed so that it may be used on public highways, yet this quality does not, it is claimed, impair its cross-country performance. (Stand 95.)

Four products of R. H. NEAL AND CO., LTD., are exhibited. The crawler crane, which is designated "NMC," is particularly suitable on building and contracting sites where the ground is unsuitable for rubber-tyred models. The 1-ton loading shovel is claimed to be the fastest shovel of its type ever made, and is particularly suitable for stock piles and shifting loose materials, etc. It can be used as a crane by removing the bucket arm. The ½-ton Neal "Runabout" mobile crane is particularly suitable for yard stacking in confined spaces and its turning circle is very small due to the rear wheel drive and steer. The "AM" 8-cwt. crane is also on view. (Stand 134.)

NEWTON CHAMBERS AND CO., LTD., are exhibiting an NCK Model 304 (¾ cu. yd. capacity) excavator equipped as face shovel. Detailed examples of the main constructional features of the machine are shown together with a series of large-scale photographs of the type of work on which NCK machines are engaged in various parts of the world. (Stand 148.)

For muckshifting over distances where track-type tractor speeds are uneconomical, a new high-speed combination on pneumatics has been introduced and is one of the chief exhibits on the stands of JACK OLDING AND CO., LTD., who are also showing for the first time under one roof the entire range of the latest "Caterpillar" tractors, from the 130-h.p. D8 to the 32-h.p. D2, and demonstrating the versatility of these track-type tractors in their many uses with equipment "matched" to their performance. Fitted to the heavy "Caterpillar" diesels are the new hydraulic angledozers, made by The Birtley Co., Ltd. Engineers, surveyors and public works contractors will also be interested to see the display of Barber-Greene equipment that works on the principle of "continuous flow" in handling bulk materials. These three high-capacity machines, bucket loader, ditcher and bituminous finisher, are now made in this country by Barber-Greene Olding and Co., Ltd. Excavators and cranes are represented by a Lima type 34, fitted as a shovel of ¾-yd. capacity—a fully rotating track-mounted excavator—and the pneumatic-tyred Hyster Karry Krane, a crane with adjustable boom, a load capacity of 10,000 lb. and a speed of 10 m.p.h. (Stands 49 and 56.)

A range of Dixon machinery is exhibited by B. G. PLANT (SALES AGENCY), LTD., together with the McConnel mobile safety saw, the Marhawke "C" 16-in. band saw, the "Trade Wind" compressors and the Hydracrane. The Dixon machinery includes a 3 ft. 6 in. roller pan mixer, a 5/3½ concrete mixer, a 35-cwt. road roller and a portable two-wheeled saw. (Stands 40 and 51.)

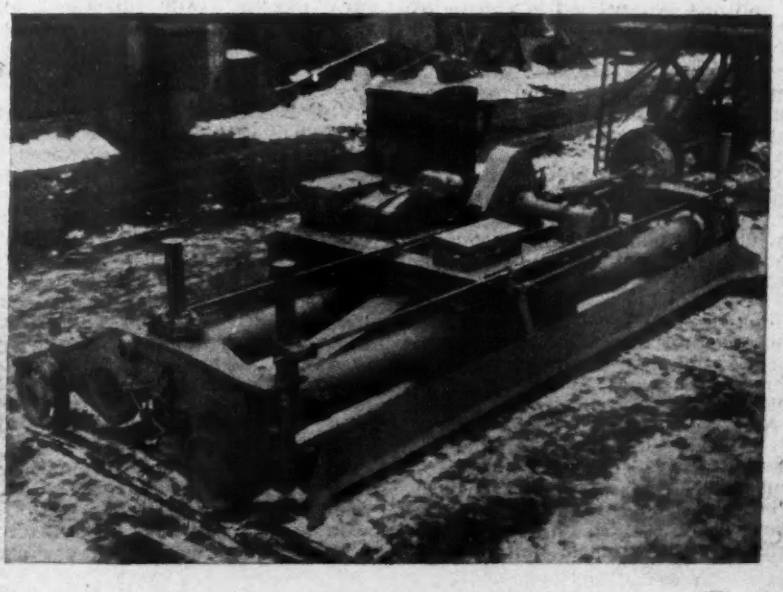
Among the features of the "Wolf" 3/8 cu. yd. capacity excavator, manufactured by PRIESTMAN BROS., LTD., are the Dorman 4 DS four-cylinder diesel engine with electric starting equipment, the live roller ring on which the superstructure revolves and the alternative sizes of tracks which can be supplied to provide a suitable machine for varying ground conditions. Simplicity and accessibility are features which have been particularly studied in the design. A single-line grab model on a gantry frame works automatically; models of four typical grabs are provided for hand operation by visitors; and additional grab models may be inspected. (Stand 124.)

Among the products of RANSOMES AND RAPIER, LTD., are the Rapier 410 Excavator, with four-purpose equipment convertible to shovel, trencher, skimmer and crane; the 3-ton Standard mobile crane on pneumatic tyres, fitted with 2-speed hoist gear and automatic safe load indicator; the 1-ton truck mobile crane with 4-wheel steering; the 5 NT trailer mixer on two pneumatic-tyred wheels, with towbar and coupled brake gear; the full range of self-priming water pumps, and various models of plant. (Stand 45.)

Control equipment for quality concrete and for bituminous materials is shown by ROAD MACHINES (DRAYTON), LTD. It includes the patented swing-weigh batcher, suitable for hand or overhead hopper feed, and the Green and Cox rapid bituminous analysis equipment, with pressure filter. (Stand 101).

A photographic display showing excavators in operation forms a background to the main exhibit of RUSTON-BUCYRUS, LTD., which is a 19-RB ¾ cu. yd. excavator equipped with shovel equipment. This is also available with skimmer, dragshovel, dragline, grabbing crane, crane and pile-driving equipment. The 19-RB excavator weighs 16½ tons in working order and is fitted with a Ruston-Hornsby four Vrohn diesel engine, developing 54 h.p. at 1,300 r.p.m. (Stand 147.)

The following machines will be exhibited by STOTHERT AND PITT, LTD.:—15 tons per hour mobile electric asphalt plant, having separate motors with en-



Above: **2-ft. hand-propelled vibrating roller.**
Right: **Concrete vibrating, compacting and finishing machine. (Stothert and Pitt, Ltd.)**

closed driving gears for all motions and arranged to take power connections from portable diesel generating set or public supply; new model power propelled tandem vibrating roller, fitted with hydraulic transmission for propulsion and vibration from a single engine; a trailer type 6 ft. vibrating roller, with Lister engine driving the vibrating gear; 2 ft. hand-propelled vibrating roller, complete with J.A.P. engine driving the vibrating gear; Super-Ten Victoria (10 N.T. concrete mixer), complete with sideloader, tank and mounted on 4-wheel truck with swivelling forecarriage; concrete vibrating, compacting and finishing machine, fitted with 14 h.p. Lister diesel engine and arranged for consolidation and finishing of mass or reinforced single or double course concreté rafts from 8 ft. to 12 ft. 10 in. wide, and No. 3½T tilting mixer, fitted with 1½ h.p. Petter petrol engine and mounted on four steel wheels with swivelling forecarriage and drawbar. (Stand 133.)

A new addition to mechanical handling equipment is the "Jumbo" crane, manufactured by F. TAYLOR AND SONS (MANCHESTER), LTD. It is primarily a mobile crane which can be fitted with attachments. (Stand 100.)

WALLIS AND STEEVENS, LTD.'S display includes the "Advance" diesel road roller mounted on rolls constructed to take water ballast and giving a range of working weights of 8 to 10 tons; the "Advance" lightweight diesel roller of 3 tons working weight; and the "Direct" hand-operated cold emulsion sprayer. (Stand 119.)

A number of items of interest to public works engineers and municipal undertakings are being shown by THOS. W. WARD, LTD. For the contractor there is representative equipment from the "Hemel" range of hoists, including a working model of the "Hemel" Hoistower and a full-size "Hemel" Mobile Hoistower which is arranged for electrical operation for demonstration purposes. Other items in this field are the "TWW" 5/3½ concrete mixer, a universal belt conveyor, portable compressor, portable pumps, winches, roller conveyor and electric generators. There is also a working model of an excavator and photographs showing units of the "TWW" hire fleet excavators, cranes, locos and other equipment in action. (Stands 63 and 64.)

The Warry Universal builders' hoist, made by R. F. WARRY, LTD., is essentially an all-purpose hoist. It is fully mobile at 20 ft., semi-mobile with one 10 ft. extension giving a total lift of 30 ft., and may be operated in a static rôle up to 80 ft. The Grippa brick truck, by the manipulation of a lever set between the handles which actuates two "claw" arms, takes up, carries and sets down where required a stack of 50 bricks at a time. It will be exhibited with the hoist. (Stand 71.)

The advantages of portable power are explained on the stand of WARSOP PETROL DRILL AND TOOLS, LTD., A working model demonstrates the operation of the two-stroke motor which powers their portable breaker and rock drill. (Stand 153.)

Equipment designed for concrete consolidation, the Westool-Stewart high-frequency vibrating table and the hand vibrator, is shown by WESTOOL, LTD. (Stand 103.)

An account of the scientific principles of concrete mixing as employed by WINGET, LTD., is given by means of a sound film. Their exhibits include a Winget turntable batcher plant, a full-size plant being erected on the stand. It consists of a turntable unit carrying a batcher with dial scale and markers. The Winget-Parsons "221" boom-type trencher—a new development—is shown under digging conditions, a trench having been constructed on the floor of the stand. The Winget "Vibrocon" vibrating spade displayed has a high-frequency vibration, low-speed flexible shaft, and is claimed to give firm compaction in 30 seconds. (Stand 135.)

BUILDING TOOLS AND EQUIPMENT

ACROW (ENGINEERS), LTD., are showing Ferroforms (steel shuttering panels) for temporary centring of concrete structures, floors, walls and columns; telescopic steel props, for supporting temporary shuttering to floors and beams; telescopic steel floor centres, for shuttering hollow block floors or Ferroforms, for concrete slab construction; steel adjustable wall clamps, for the clamping of Ferroforms employed in the construction of concrete walls; steel adjustable column clamps, for the clamping of Ferroforms or other forms of shuttering to concrete columns or casings to stanchions; steel adjustable beam clamps; steel adjustable road forms; steel adjustable trench struts; steel trench sheeting; tubular scaffolding and scaffold fittings, available both in steel and acrominium; a concrete mixer; and the Rolstore mobile unit storage system. (Stand 46.)

A range of wire ropes and fibre ropes as used by makers of excavators and earth-moving equipment, is displayed by BRITISH ROPES, LTD. Apart from these specialised exhibits, there are some products with a wider general interest, including two pieces of ancient Egyptian rope. In sharp contrast to these will be the samples of nylon rope, which was used extensively during the war as glider tow and pick-up ropes and parachute cords. It has high impact strength and stays flexible and supple even at subzero temperatures. (Stand 77.)

Exhibits of BROADS MANUFACTURING CO. are seen in their appropriate settings, and new developments are on view for the first time. Among the foremost of these are heavy sectional manhole covers and frames, one of which has a 6 ft. by 6 ft. clear opening and is designed to withstand heavy road traffic. The Broadstel patent universal manhole cover and frame is represented as also are Broads Trucast sectional continuous duct covers. A comprehensive range of sewerage and road drainage ironwork, including many of Broads special designs, can also be seen, together with full-size exhibits, models, and drawings of Broadcrete lighting columns, to designs passed by the Royal Fine Art Commission. (Stand 32.)

Visitors interested in screening, grading and filtering should note the display of G. A. HARVEY AND CO. (LONDON), LTD. Specimens of "Harco" perforated metals are available for inspection. "Harco" woven wire cloth is displayed in a variety of meshes and gauges in all metals. Of special interest are the wire screens used for vibratory and rotary screens. Other features of the exhibit are "Harco" wire work clothes lockers and cloakroom fittings; zinc and copper roofing; ventilators and cowls; mild steel gutters, pipes and fittings; "Harco" manholes and hot-water tanks; "Harco Tapergil" gilled tube in varied diameters and pitches of gills; "Harco" steel equipment; and illustrations of fabrication of plant for the industrial, chemical and oil refinery trades. (Stand 150.)

JOHNSTON BROTHERS (CONTRACTORS), LTD., have on their stand a range of their standard products, including bitumen heaters and sprayers. Those concerned in factory building and roof work will be interested to know that their Treble Pass trailer type bitumen heater, which is equipped with oil firing, is now made especially for roof and floor work in capacities of 20 and 50 gallons, these machines being miniatures of the much larger capacity machines of the same class. The firm are also showing the "Ever-hot" asphalt smoothing iron, which is a self-heating iron of particular use in making joints in asphalt floorings, etc. (Stand 155.)

A main need in building and civil engineering trades is to obtain safety for operatives. KWIKFORM, LTD., claim that their equipment, particularly those ranges such as the scaffolding and trestles, provides the answer to this need. It is also claimed that "Kwikform" saves 50 per cent. labour. On view are samples of Wallform shuttering, beam and pier shuttering, suspended formwork and unit frame scaffolding. (Stand 61.)

A full range of single and extending ladders in aluminim alloy is exhibited by LYTE LADDERS MANUFACTURING CO., who claim to be the original manufacturers of aluminium ladders on a commercial scale. Their products, they state, are as little as one-third the weight of wood, but are extremely strong and practically indestructible. They are also rustproof, fireproof, and weatherproof. Among new items are extending step ladders, step ladders with safety handrails, special 15 ft. extending ladders for lamp standard maintenance, weighing only 17 lb., as well as aluminium reflecting and non-reflecting road studs, electrical conduit fittings, etc. (Stands 14 and 15.)

Apart from the normal type of light railway material, M. E. ENGINEERING, LTD., are showing articles of special interest, including the "Maco" reversible lay-on switch, made from one pressed steel plate, which can be laid on the track without interrupting it, branching right or left hand, or allowing the trains or vehicles to pass straight through. Also shown is a lay-on turntable, which can be placed on any point of the track without interrupting the line, allowing the wagons to be turned completely or sided in any direction. The turntables can be used as a track crossing, or the wagon can pass straight over. Attention is drawn to a new axle-box design, the "Bandion Super"; it is unbreakable, made from pressed steel and fitted with precision roller bearing with case-hardened race. In the section dealing with contractors' tools and equipment, the "Maco" pipe-laying winch is shown. It is an efficient way of lifting and lowering pipes, etc. The popular "Maco" twin-wheelbarrow, with its all-tubular frame construction and rockers for easy tipping, can also be seen on the stand, as well as the normal type of "Maco" navvy barrows. (Stand 86.)

TURNERS ASBESTOS CEMENT CO., LTD., feature "Everite" asbestos cement pressure pipe for water and gas mains. There are two machines which show the method of cutting and turning the ends of these pressure pipes, and the various machines for drilling and cutting under pressure are also on view. There is also an interesting range of asbestos cement pressure pipes which have seen service under a variety of onerous conditions. (Stand 28.)

The stand of "TWISTEEL" REINFORCEMENT, LTD., is designed to show suitable applications of barrel vault roofing in miniature. Models and drawings of actual structures are also on view. A

selection of samples of standard reinforcement fabrics and bars is being shown as well as examples of special purpose material. Qualified technical representatives are present at all times to offer explanations and advice if required. (Stand 36.)

A full range of Victaulic flexible joints, bends, elbows, tees, crosses, setting pieces, flange adapter joints, hose couplings, together with Johnson flexible couplings and Johnson coupling flange adapters, is displayed by the VICTAULIC CO., LTD. These are for use with steel and cast-iron pipes, in sizes ranging from 1 in. to 100 in. in diameter, for pressures from zero to 1 ton per square inch, for water supply, including circulating water mains for power stations, compressed air, sewerage, gases and oils. (Stand 33.)

SANITARY AND CLEANSING PRODUCTS

A new development of value to public health is the technique introduced by AEROSOLS, LTD. An "aerosol" is a very finely divided mist of liquid, the particles being so small that they are non-wetting and circulate freely throughout a given air space. An aerosol is in effect a dry mist. For insect destruction, an aerosol of a suitable liquid insecticide is produced. For dealing with flies, moth, cockroaches, etc., in large establishments the PD1 Phantomyser is used. This machine, mounted on a two-wheeled trolley with lifting handles, incorporates a ½-h.p. electric motor operating a rotary air compressor. For air disinfection and sterilisation an aerosol of a suitable bactericide is produced. The PD2 Phantomyser can be used for this. Inhalation therapy, particularly for infections of the upper respiratory tract, using penicillin in solution, is widely used in hospitals. The MA3 Aerolyser is an aerosol generator specially designed for this purpose. (Stand 13.)

BELL BROTHERS (MANCHESTER 1927), LTD., are exhibiting a variety of models and equipment in connection with water purification, softening and sterilisation. (Stand 24.)

The EAGLE ENGINEERING CO., LTD., exhibit their 7½ cu. yd. side-loading refuse collector; 800-gallon vacuum cesspit emptier; three-stage hydraulic power-operated tower wagon; 8-9 cu. yd. "Compressmore" refuse collector; 7 cu. yd. all-steel dual-purpose refuse collector; and road-sweeping machine. (Stand 79.)

ELECTRIX, LTD., are showing a spraying unit. It is self-contained, operating on either A.C. or D.C. mains, and is portable. It may be used for spraying insecticides and protectives for garden sheds, outbuildings, greenhouses, etc.; for providing a flat finish for interior decoration; for cellulose spraying, and for spraying of disinfectants in hospitals, etc. (Stand 167.)

HOOVER, LTD., are displaying their cleaner with its new features; the electric washing machine, which employs a new washing principle and will fit under the average draining board; and the fractional horsepower motor, which is of the squirrel cage induction type with protected, ventilated enclosure, the range covering split phase, capacitor start and three-phase motors in ⅛ h.p., ¼ h.p., ½ h.p. and ¾ h.p., wound for all normal voltages. (Stand 202.)

Three of the General Chemicals Division's products, liquid chlorine, "Chloros" and "Gammexane," are featured on the I.C.I., LTD., stand. The use of liquid chlorine in water purification and sewage disposal is illustrated, particular reference being made to the purification of public water supplies and swimming bath water, using the technique of break-point chlorination. The many uses of the "Chloros" sodium hypochlorite disinfectant in the field of public health is also shown. The stand also displays "Gammexane" insecticides. (Stand 26.)

JEYES SANITARY COMPOUNDS CO., LTD., are exhibiting Jeyes' Fluid, the germicide for use in the home and garden; sanitary powder; Pyagra spray insecticide; Pyagra dust insecticide; Jeyes' hygienic toilet paper (interfolded); Jeyes' white earthenware toilet paper fittings; Jeyes' hygienic paper towels; paper towel cabinets; and "Mistmaster" electric sprayers. (Stand 198.)

At the S. C. JOHNSON AND SON, LTD. wax products stand, technical experts are in attendance to explain and demonstrate the Johnson method of floor maintenance. Johnson's wax products are available for all types of floors, whether wood, rubber, cork, asphalt, linoleum or composition. The stand will prove of special interest to all who are concerned with the economy of floor maintenance, and particularly to those who are responsible for maintaining large floor areas. (Stand 203.)

LACRE LORRIES, LTD., are showing their "M" type mechanical sweeper. It is of three-wheel construction, giving high road manœuvrability. A 12-h.p. engine with a four-speed gearbox provides low fuel consumption while sweeping. A 100-gallon water tank with centrifugal pump is provided for pressure spraying. The brush is flexibly mounted, giving a clean sweep on all cambers with sweeping width of 6 ft. The body is constructed of aluminium alloy. The most recent developments in this model are the fitting of detachable water spray nozzles and the fitting of a detachable snow-plough which is easily clamped to the frame. (Stand 59.)

Floor maintenance machines which have been specially designed for hospital use, for the cleaning and polishing of floors, contain improvements which have been incorporated by ROLLNICK AND GORDON, LTD. The Dixon floor maintenance equipment, comprising floor maintenance machines for cleaning, scrubbing and polishing of floors and shampooing of carpets, is of particular interest because of the speciality of design which is related to functional purposes. (Stands 10 and 201.)

The shortage of traditional cleaning materials might be expected to create difficult problems for local health authorities. To-day science makes it actually easier to attain the new cleanliness than it was in the days of plenty. The advantage and versatility of new materials are demonstrated by SHELL CHEMICALS, LTD., who also display a range of insecticides to cover all local government authorities' requirements of this nature. (Stands 168 and 169.)

Among the exhibits shown by WALKERS AND COUNTY CARS, LTD., is the "Paladin," a method of dealing with refuse from flats and block dwellings. It consists of a circular container, holding 1½ cu. yd., which sits in the chamber at the bottom of the refuse chute. The vehicle has a trolley which is carried by it, and this enables the containers to be removed from the dust chamber and brought to the rear of the vehicle. It is locked into a girdle, hoisted to the top, emptied and lowered by hydraulic means, and then returned to the dust chambers. (Stands 65 and 66.)

A modern chlorinating house containing all equipment necessary to protect a public drinking supply against pollution, including automatic residual controlled chlorination plant, is the main exhibit of WALLACE AND TIERNAN, LTD. In contrast an old well-head is shown, together with museum exhibits illustrating the primitive methods used in early water supply systems. The organisation has been responsible for the introduction of a new chlorinating process termed Break-Point Chlorination. It has been put into practice at many swimming baths during this year for the purpose of eliminating dangerous pollution and preventing algae growths. (Stand 82.)

LIGHTING, HEATING AND VENTILATION

The complete range of instantaneous gas water heaters of ASCOT GAS WATER HEATERS, LTD., are shown under working conditions. (Stand 13A.)

Colt Canadian Red Cedar Shingles, which are again available through renewed importation to this country from Canada, are exhibited by W. H. COLT (LONDON), LTD. Also on show is Colterro Lathing, a material comprising a combination of wire-mesh and electrically kilned clay. This product affords an excellent key for all kinds of plaster, and provides a method of dealing with plain, curved and suspended ceilings, vaults, single and double partitions. The associate company, Colt Ventilation, Ltd., exhibits the Colt constant flow ventilator, and the Colt P.R. type roof ventilator, which is available with thermostatic or manual control. (Stand 99.)

COPPERAD, LTD., who have added to their range of products a deep freezer, known as the "Freezerver," designed for the storage of 360 lb. of food, are also showing their unit heater, convector heater and ventilating grilles. (Stand 74.)

From the equipment produced for the public health and works services, THE GENERAL ELECTRIC CO., LTD., has selected for display examples of lighting, ventilating and catering equipment, and a variety of electrical fittings of particular use in hospitals and public buildings. The company shows a fluorescent lighting fitting for operating theatres utilising five Osram 80-w. fluorescent lamps as the main light source. Four 100-w. Osram lamps in parabolic reflectors fitted with glass diffusing screens can be connected to an independent power supply for emergency lighting. Heavy cooking equipment, a luminous call system, and Mutac silent switches for a.c. circuits are also shown. Indoor cleaning equipment includes vacuum cleaners and floor polishers while ventilation will be represented by Xpelair fans. A street lighting exhibit is included. (Stand 34.)

Methods for the improvement of ventilation are shown by VENT-AXIA, LTD., who are exhibiting their standard range of stale air extractors, consisting of the Silent Six, Silent Nine, and Industrial Twelve, all of which are shown in operation. The largest of the range gives a displacement of approximately 40,000 cubic feet of air per hour, and consumes 60 watts. The consumption of the Silent Nine and Silent Six is, of course, relatively smaller. The product is guaranteed for a year. The manufacturers recommend that the two larger units should be used in conjunction with a three-speed control that can also be supplied. (Stand 166.)

A model of a Dust Recovery Filter Unit is the main exhibit of VOKES, LTD., who also have on display a full range of air filters for air conditioning and those for industrial and commercial appli-

cations, such as diesel and petrol engines, compressors, electric motors, etc. (Stand 3.)

ROADS

The materials which the AMALGAMATED ROADSTONE CORPORATION, LTD., are showing include: Precast concrete units (granite aggregate), slabs, building blocks, fenceposts; broken limestone and ground limestone from Gloucester, Northumberland and Kent; "Granophast" and "Granogrip" bituminous surfacings; all standard sizes of seaborne granite and basalt from quarries in Cornwall and Wales; various graded aggregates for concrete and asphalt, incorporating a number of British Standard Specifications for aggregates; grits and fillers, including the well-known Criggion green grit; Damasfalt fine toppings; Northumberland whinstone; Clee Hill basalt; and sand and gravel from pits at Lydd. A specially prepared map shows the location of the corporation's quarries, depots and concrete works, and in front of the map is a piece of lump stone from each of the quarries. (Stand 21.)

The principal exhibit of BRITISH ROAD FEDERATION, LTD., is a model which shows the type of modern road construction consistently advocated by the Federation. A display of photographs depicting motorways is also featured. Publications produced by the Federation are available, and members of the staff are in attendance to receive visitors and to deal with inquiries. (Stand 102.)

The "catseye" or reflecting roadstud in its rectangular form, and in a special form for acute curves, is shown by REFLECTING ROADSTUDS, LTD., as well as a comparatively new pedestrian crossing stud. Samples of composition rubber flooring are also on view. (Stand 90.)

Apparatus for testing bituminous road emulsions, linked with laboratory equipment whereon visitors may see actual tests being carried out, is featured on the stand of the ROAD EMULSION ASSOCIATION, LTD. Technical experts are continually in attendance to answer any inquiries, or to give advice on all matters concerning emulsions, their applications and uses. (Stand 20.)

FLOORINGS

Rubber floor coverings in both tiling and sheeting may be seen on one of the stands of the ATOMIC RUBBER FLOORING COMPANY, who are also demonstrating an up-to-date method of banishing draughts by the fitting of specially manufactured phosphor bronze alloy strips. This process may be adopted in all cases where fitments are wooden. (Stand 176.)

Implements connected with floor maintenance, such as electric and hand polishers and sprayers, are demonstrated by the GRANWOOD FLOORING COMPANY, LTD., manufacturers and fixers for nearly thirty years of "Granwood" floor blocks. The firm is also exhibiting flooring and dado, partly plain and partly in feature, and models of special feature items such as staircase work, dadoes, coved skirtings, trench covers, etc. Another exhibit is a model showing the floor construction layout of the "Evans System" of underfloor warming, which the company claims to be the most efficient and equable method of heating extant. (Stand 112.)

Samples of new cork composition flooring in a full range of colours are displayed by SEALOCRETE PRODUCTS, LTD., who also show their hardeners and waterproofers and range of coloured cement work incorporating all types of external and internal finishes obtained by the use of the Sealantone liquid colours. An improved method of dealing with the physical movement of concrete at construction joints and the waterproofing of concrete for foundations below ground, basements, etc., may also be seen. In this the patented "Waterbar" has been incorporated. (Stand 105.)

GOVERNMENT EXHIBITS

THE DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH. The research on the redevelopment of central areas in which the Building Research Station has collaborated with the Ministry of Town and Country Planning has led to a satisfactory technique of development. Their exhibit explains the main ideas of the thesis evolved. The Station's work on plumbing research is also represented as is the work of the Road Research Laboratory and the Water Pollution Research Laboratory. (Stand 25.)

The Infestation Control Division of the MINISTRY OF AGRICULTURE AND FISHERIES is primarily concerned with pests which attack food in transit or stored, either in the form of raw materials or as finished products. It is also concerned with animal pests. The exhibit shows the types of pests, damage caused, and methods of inspection, control and prevention. The Division is willing to cooperate with local authorities in local food and hygiene exhibitions, and has incorporated in the exhibit information as to the material available for such purpose. (Stands 163 and 164.)

When the first Public Health Act was passed a hundred years ago, the science of nutrition was in its infancy. Since the turn of the century nutritional science has advanced rapidly and the world has come to realise that proper feeding plays an important part in the improvement of public health. During the recent war the application of scientific principles to Britain's food policy has been internationally recognised. The MINISTRY OF FOOD stand shows some of the changes which the last hundred years have witnessed. (Stands 171 and 172.)

Among the exhibits on the MINISTRY OF WORKS' stand is plant and equipment developed at the Field Test Unit, including a power-driven mobile earth-auger, for pile foundations for houses to be built on clay soils liable to shrinkage. Pile foundations put in with this machine replace the deep-trench foundations otherwise necessary in such circumstances. A concreting boom with skips for placing oversite concrete in housing work will be on view, and a slab barrow specially designed for handling concrete slabs, which picks up, carries and deposits concrete slabs of varying sizes. Prestressed concrete components are shown together with fillings and surface finishes for use with prestressed joists. Other prestressed concrete components include a clothes-line post weighing only 50 lb., against 128 lb. for an ordinary reinforced post; prestressed purlins of 15-ft. span for standard farm buildings; and demonstration planks which show the resilience of the material. (Stand 35.)

MISCELLANEOUS

The application of aerial survey and air photography to the work of planning authorities, surveys and civil engineers is the theme of the exhibit staged by AIR SURVEY COMPANY, LTD. The type of camera used for the taking of air photographs is on show, together with a "Multiplex" plotting machine as used by the company for precision mapping and map revision from air photographs. A model illustrates the whole operation of producing a map from air photographs. Examples of air photographs and specimen maps produced by the company on its own printing press are also exhibited. (Stand 210.)

THE AUTOMATIC TELEPHONE AND ELECTRIC CO., LTD., is exhibiting Rythmatic Ripple Control Equipment, which enables electricity distribution networks to be controlled from a central point by means of voice frequency currents superimposed on to the existing cables in pulses or "rhythms." Two types of relay are shown: the Type 38 Relay and the newly developed Type 46 V.S. Relay, which is small enough to replace time switches without alteration to the lamp standards. Road traffic authorities visiting the exhibition will be particularly interested in the section which contains views of some of the busy and complicated intersections at which Electro-Matic Vehicle-Actuated Signals have been installed. A working demonstration of a typical installation is on view, and the sensitivity of the road detector can be tested. (Stand 9.)

Electric potato peelers and "Torrent" dish-washing machines are on view at the display of the AVAMORE ENGINEERING CO., LTD., together with the "Wicksteed" bread-buttering and slicing machine, and the steam and electrically heated "Torrent" dish washing machine. (Stand 208.)

DENNIS BROS., LTD., are exhibiting six municipal vehicles. These are all closely related. Their similarity considerably eases the question of maintenance, interchangeability and replacements. They have been specially designed for the class of work for which they are subjected. (Stand 85.)

DILLOWAY, LTD., engineers and welders, are displaying crawler tractor parts rebuilt by welding processes and excavator tracks rebuilt and holes reforged. (Stand 120.)

On the stand of ELECTROLUX, LTD., the M.151 built-in type refrigerator is displayed. This is a refrigerator without moving parts which can be operated by gas or electricity. The company has supplied over 80,000 temporary prefabricated houses with refrigerators and is now supplying many local authorities for permanent housing schemes. Also on this stand, the Electrolux Z.30 suction cleaner is shown. (Stand 162.)

A method to stop the flow of water by controlled freezing during the repair of pipes and fittings is shown by FREEZ-SEAL EQUIPMENT CO., LTD. In this method the water pipe is compressed flat by means of a pipe-closing tool close to the burst; a controlled drip tool is affixed on the upstream side of the pipe-closing tool, and the freezing tool at the end of the flexible tubes of the portable refrigeration unit is locked round the pipe. This equipment is capable of dealing with all sizes of pipes up to one inch bore or 1¼ outside diameter. (Stand 199.)

GOWSHALL, LTD., engineers, have a display that will interest highways engineers requiring road signs, guardposts, columns and auxiliary equipment. (Stand 122.)

The exhibits on the stand of HUNTING AEROSURVEYS, LTD., show the methods employed in preparing contoured maps and plans, and many other applications of air photography. (Stand 91.)

The display of the LEA RECORDER CO., LTD., includes recorders for measurement of rivers and streams, water supplies and compensation water; instruments for measuring trade effluent, sewage and storm water; electrically operated re-

corders and integrators for centralisation of records; compound recording and integrating instruments specially designed for accurately recording and integrating on the same machine both dry weather and storm flows; a new design of river level recorder; sewer flow meters of various types for temporary and permanent gaugings; recording and integrating instruments built into weatherproof cases. (Stand 11.)

LLOYDS BANK, LTD., is providing banking facilities. Experienced officials are available to advise on financial problems connected with both home and overseas business. (Stand 121.)

The MIDLAND BANK, LTD., provides banking services for exhibitors and visitors to the exhibition. (Stand 157.)

Although THE RAWLPLUG CO., LTD., became internationally well-known through the marketing of the Rawlplug, the success of this device as a reliable universal fixing led to inquiries for solutions to peculiar fixing problems. Arising out of this development, the company have introduced a number of special devices, each being the answer to a specific fixing problem. The fixing of heavy plant and machinery for immediate operation without the mess, labour and delay of the old-fashioned grouting-in method was solved with metal expansion bolts—Rawlbolts. Two types are made, loose bolt and bolt projecting in all popular sizes from ¼ in. to 1 in. diameter. Fixing to thin and hollow materials, in which it is difficult or impossible to use orthodox devices, may be carried out with gravity and spring-type toggles which are made to take 3-16 in. screws. The problem of inserting tapped fittings in thin or hollow materials from which the screw could be extracted and replaced at will was solved with Rawlanchors, which are made to take ⅛ in., 3-16 in. and ¼ in. screws. Heavy equipment can be held in positions on walls or ceilings where a rear brace is essential to safety with "H" type heavy duty toggles. Six sizes are made for bolts from ¼ in. to ¾ in. diameter. These and many others will be demonstrated. (Stand 108.)

A film display using the Brook Film Cabinet is an interesting feature of the exhibit arranged by the ROYAL SOCIETY FOR THE PREVENTION OF ACCIDENTS. A Senior Trainer, in which non-drivers as well as drivers may test their reactions to emergency, is under the supervision of one of the Society's instructors. A general display of posters and literature covering all aspects of the Society's work is also on view. (Stand 161.)

The "Proto" and "Salvus" oxygen and compressed air types of self-contained breathing apparatus for use in the harmful atmospheres met with by fire brigades and in gas works, refrigerator plants, sewers, etc., are shown by SIEBE, GORMAN AND CO., LTD. Also exhibited are gas masks, respirators and smoke helmets; medical equipment; and protective goggles, spectacles and gloves. (Stand 170.)

The problems of recruiting staff, particularly in the field of public health, lend emphasis to the many ways in which communication and signalling systems can save time and effort in the administration of public services. The various exhibits on the stand of STANDARD TELEPHONES AND CABLES, LTD., are designed to show these systems in action. (Stand 142.)

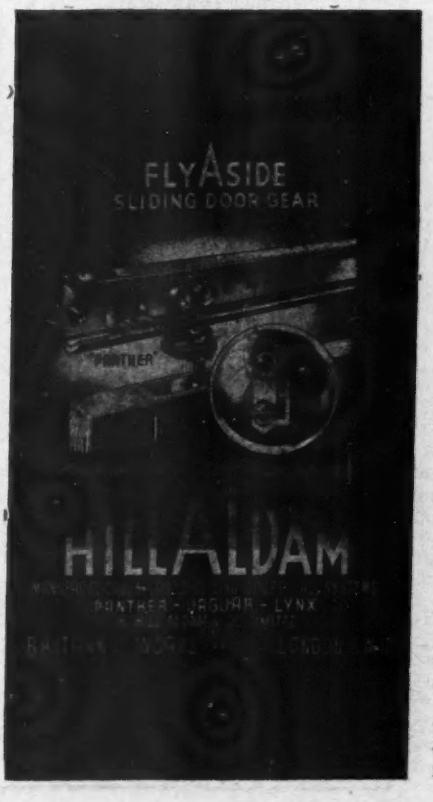
Brake and clutch linings for all types of public works and constructional plant, such as diggers, trenchers, concrete mixers, cranes, hoists, excavators, etc., are displayed by HUBERT H. P. TRIST AND CO. (Stand 75.)

HOUSING AND TOWN PLANNING EXHIBITION

FROM A CORRESPONDENT.

THIS exhibition, in the Empire Hall of Olympia, was opened on Wednesday by Mr. Lewis Silkin, Minister of Town and Country Planning.

On a chilly November day it took a good deal of resolution to apply oneself to the display, especially on the upper floors, where empty space and a great expanse of concrete flooring does not conduce to earnest study. Nevertheless, it is here, on the first and second floors, that the chief interest of the exhibition is to be found. It consists in a very comprehensive show of models, photographs, drawings and diagrams of current housing at home and abroad. I do not remember having seen so good a display before. The City and the boroughs of London, the large provincial centres, the town, country and village councils are all represented by their various schemes, and, in addition, there is a very large representation from Denmark, Poland, Sweden, Norway, Belgium, Switzerland and Austria. Among the provincial schemes will especially be noted the new City Centre for Plymouth, the Leeds Civic Centre and City Circle Road, and the redevelopment scheme for the central area of Bradford: and among the London borough schemes the Pimlico housing scheme, the Regent's Park development scheme (St. Pancras), the Coldharbour Farm Estate at Enfield (Woolwich), and the Wimbledon Park Estate (Wandsworth Borough Council). The Continental exhibits cannot be enumerated here, but, apart from considerations of town planning and architectural design, there is particular interest in studying the several prefabricated house construction systems (the Schindler-Göhner, Baumberger, Durisol, Ex-Po and Nilbo) on the Swiss display stands, and the "Thermo" on the Austrian stand. The International Federation for Housing and Town Planning was responsible for this exhibit of what is being done on the Continent It was designed by Mr. Spiwak for the Hastings congress of the Federation two years ago.



On the second floor of the exhibition the work of numerous national organisations is represented mainly by photographs. They include such bodies as the National Trust, the National Smoke Abatement Society, the Society for the Protection of Ancient Buildings, the Youth Hostels Association and the British Road Federation; and here, too, is the newest of them all, the National Institute of Houseworkers, with a specimen of the beautiful diploma awarded to those who have gone through the training course of twenty-six weeks, have satisfied the Board of Examiners, and are ready to go out and do a good job of work for harassed householders who can afford to pay for their help.

Building is not a prominent feature of the Exhibition, and there was nothing particularly new that I noted. The "Airoh" (aluminium) house is on show, this exhibit being the 16,759th of its kind produced by the Blackburn factory at Dumbarton since it started two years ago, output being at the rate of one complete house every twenty-four minutes. Two methods of concrete wall construction attracted my attention—the "Holco" multiple cavity block (shown by Holcon, Ltd.), and the "On Site" cavity block, formed on the wall (shown by Building Plant Hire, Ltd.). There are a number of exhibits of house equipment, especially enamelled steel or aluminium kitchen units, such as the "Elizabeth Ann" and the "Annette," shown by Andrew Bros. (Bristol), Ltd., and the "Easiclene" sink units and kitchen and bathroom cabinets, shown by Easiclene Porcelain-Enamel (1938), Ltd. "Holoplast" structural plastic boards can be seen on the stand of Holoplast, Ltd.; some attractive composition flooring is shown by the Veitchi Co., Ltd.; new aluminium stoves by the London Warming Co., Ltd.; the "Benfix" prefabricated floor joists, of light steelwork with timber fillets, by the Benfix Steel Co., Ltd.; and "Klinger" plastic flooring tiles by Richard Klinger.

The exhibition is open till Thursday next, November 18, 10 a.m. to 9 p.m.

STEEL ECONOMY

USE OF REVISED B.S.S.

THE Minister of Health in Circular 168/48 refers to the revised British Standard Specification 449:1948, for the use of structural steel in building. The purpose of the revised Standard is to secure economy in the use of steel by raising the permissible basic stress for structural steel from 8 tons to 9 tons per square inch, and the flexural stress to 10 tons per square inch. The revised specification has been accepted by the local authority associations represented on the Committee of the British Standards Institution.

It has been decided that as from October 1 last, all construction involving the use of more than 25 tons of steel should, wherever possible, comply with the Revised Specification. A building scheme forwarded to the Department for authorisation under the Defence Regulations should, if more than 25 tons of steel are required, be accompanied in future either by a certificate (signed by the architect, or engineer, or other responsible professional consultant) that the building has been designed in accordance with the new standard or, where the architect or other responsible person is of the opinion that these standards cannot be applied, by a statement giving the reasons.

PROBLEMS OF HOUSING FINANCE

A Paper Read at the Institute of Housing Conference

PRESENT conditions, especially the shortages of materials and labour, and the fact that current costs are not known, tend to mask the real position in the field of housing finance, said Dr. A. H. MARSHALL, B.Sc. (Econ.), Ph.D., F.I.M.T.A., A.S.S.A., City Treasurer of Coventry, when reading a paper on "The £ s. d. of Housing," at the Institute of Housing Conference, at Brighton, on October 14.

Following is a summary of his remarks:—

Prior to the 1914-18 war, housing was not a public service. In 1919, housing became a public utility service over a large part of Europe. This came about because houses could not be provided at a charge which the average person could pay. We could not afford to wait for the slow grinding of the laws of supply and demand; State interference became inevitable. The precise effect of the State's intervention with subsidies, especially the extent to which the subsidies prevented prices falling to their "natural" level, has been a subject of dispute for many years. However, all investigators would agree that whenever State subsidies are proffered a highly artificial situation develops, whether the subsidy be for housing, food or primary products.

It is, moreover, the artificiality of the situation which is responsible for the local authorities' principal complaint against the Government—the inadequacy of the Exchequer subsidy. The Minister of Health is in a dilemma. The higher the subsidy the less building prices are likely to fall; but the lower the subsidy the greater the cost to local funds or the higher the rents. Inevitably there is a compromise. In a period of rising prices the subsidy will lag behind the increases because the Government will be afraid of driving prices higher. This is the position at the present time. Local authorities have proved that since the present subsidy was fixed in 1946 prices have risen to an extent which more than offsets the fall in interest, yet the Government has refused to adjust the subsidy.

The real costs of current building are not known with any accuracy because of the slow progress of building, and the operation of rise and fall clauses in contracts. To think in terms of a 10s. rent—the officially sponsored figure—is impossible. The average rent for new houses for the authorities from whom I have collected data is 14s. 8d., for houses varying in size from 920 sq. ft. to 1,050 sq. ft., and even this level leaves an average annual deficiency of £3 7s. per house over and above the statutory rate contributions and Government grants.

Incidentally, one of the interesting features of any collection of house construction costs is the variation between different authorities. Thus costs for a house of 950 sq. ft. vary between £1,456 and £1,055. A close analysis of the difference between these costs would provide material for an interesting paper to your Institute, if you could some day prevail upon some kind-hearted local authority architect to undertake the labour of collection and analysis.

With this I pass to the financial problems which are knocking so loudly at the doors of our local authorities. All the difficulties arise from one cause—increased costs—and there is one simple solution to all your troubles, increased rents. Let us look at the reasons why either rents must be increased or public subsidies rise to undreamed of heights.

First, there is the high cost of construction. The last contract let by my own authority in 1939 for houses of 885 sq. ft. was for £476 including all site costs. The present contracts for houses of 1,056 sq. ft. are for £1,534 approximately. The gross loan charges on the 1939 houses were 7s. 8d. per week and on the present houses 21s. 3d. per week. The subsidies from public funds were roughly equivalent to £8 5s. per annum for 40 years on the 1939 houses and are £22 per annum for 60 years on the present ones. A recession of trade might bring some reduction in these figures, but he would be a bold man who would prophesy any substantial fall. Apparently whatever the new methods of construction have brought they certainly have not effected any economies in building costs. The only saving in the near future will be a possible fall in the cost of acquisition of land because of the operation of the Town and Country Planning Act. But this will only operate for future purchases of land. I need hardly add how necessary it is for local authorities to watch their costs, and where they build themselves to make sure the relevant cost data are accumulated and used.

Secondly, there is the increased cost of repairs. Upon the position of local authorities' repairs funds there is a wealth of recent statistical data, and in particular an elaborate tabulation by the City Treasurer of Liverpool (Mr. John Ainsworth), giving details of the Rents and Repairs Funds of 83 County Boroughs. From this return the inadequacy of the contributions to local authorities' repairs funds is only too obvious. In 1939 the average annual contribution was £4 18s. 6d. per house; now it is £6 11s. per house, whilst the amount of the accumulated fund per house has actually gone down from £17 15s. 11d. to £15 14s. It is common knowledge that costs are more than double that of 1939, so that if the 1939 figures were correct, the contribution should be nearly £12 per house. The accumulated funds should be much more than twice that of 1939 because repairs are accumulating, because of labour and material shortage, and the proportion of new houses upon which no repairs have accrued is increasing. There is, in addition, the greater cost of maintenance of some of the types of houses now being erected. This tends to increase the repairs contribution required. Already in some authorities, annual expenditure on repairs exceeds the annual income of the fund, though the authorities are unable, by reason of labour and material shortages, to do their full programme of repairs.

Thirdly, there is the increased cost of management. Upon this subject there is a diversity of practice in allocating expenditure which makes the investigator despair. Management expenses are mostly salaries and these are known to have risen.

Fourthly, there is the movement for better amenities, none of which are reflected in the figures I have given.

Fifthly, there are increased capital charges because of the slow rate of construction. It is difficult to collect figures of interest on capital lying idle during construction. That it is of prime importance can be gauged from the fact that the City Architect of Coventry estimates that whilst the average pre-war period of erection was six months, it is now at least ten months. The number of man-hours has risen from roughly 2,000 per house to 3,000; a substantial increase even allowing for the increased size of the post-war houses. A post-war tabulation prepared by the Borough Treasurer of Mitcham, relating to local authorities in Surrey, showed that of 3,307 houses constructed during the period under review, 1,115 had been in construction over twelve months.

I should be the last to belittle progress in housing standards, but one does wonder whether the time has not come when the effects of the ever-improving standard of housing and housing amenities on the cost have not to be more carefully considered, especially because whatever costs are incurred are hung round the necks of the tenants or of the public for sixty years. Once the houses are up the next two generations are financially committed.

Are these material costs to fall wholly upon those who happen to live in a costly post-war house? In the case of an authority with relatively few pre-war houses they must. But in other cases, and these are in the majority, the Statutes have mercifully provided local authorities with a means of mitigating the severity of these post-war increased costs. Section 85 of the Housing Act, 1936, provides as follows: "In fixing rents the authority shall take into consideration the rents ordinarily payable by persons of the working classes in the locality, but may grant to any tenant such rebates from rent, subject to such terms and conditions, as they may think fit."

The local authority is thus the complete master of its rents. In the light of this section what could one expect to find? Surely that the rents of local authority houses should be proportionate to their letting value and not regulated by the accident of the costs of construction ruling at the time the houses were

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constructed. The picture is unhappily very different. Between the wars costs (and subsidies) varied from time to time and 1936 local authority rents were in the main illogical. Under Section 85 many of them have been adjusted and the effect of historical accidents swept away. Are we to repeat the events of 1919-1936? It is to be hoped not. I suggest that the only way of dealing with local authority rents which will be permanently workable is to spread the effect of increased costs of post-war houses over all local authority houses. The post-war houses would then only be dearer in so far as they are better. The periodical review contemplated by the 1936 Act will thus become a reality. The corollary is that local authorities must face periodical fractional adjustments of all their rents. A number of authorities are already working on these lines. But the majority appear to be fixing post-war rents on current costs and thus building an illogical rent pattern which must inevitably bring future troubles.

Those authorities who consolidated their rents in pre-war days have only the effect of the post-war situation to contend with. Others are faced with the problem of consolidating their inter-war rents and allowing for post-war increased costs at the same time.

The object of a consolidation scheme is to fix rents proportionate to the value of the house. Usually the authority calculates them so that the aggregate rents will enable the housing revenue account to balance after credit has been taken for the Government and rate statutory subsidies.

In fixing the rents, regard will be had to size, number of rooms, locality, age, internal planning, presence or absence of bathroom, amenities of the estate, transport services, quality of buildings, nature and quality of internal fittings, and the like. Whatever method is adopted, the first attempt may not give the required aggregate income, and the whole level may need to be raised or lowered slightly. Before the rents are put forward to the Committee, each one should be reconsidered carefully by the person in immediate charge of the letting who knows the importance prospective tenants attach to the various features, and can gauge the relative attraction of different districts, estates and styles of building.

Local authorities have adopted devices to mitigate the initial shock of consolidation schemes where the disturbance in rents is great. One authority decided that the initial alteration to tenants should be limited to 1s. 6d., the full alteration having effect only on change of tenancy. An obvious alternative is to introduce the changes by stages. Clearly the best course, if the Council is willing to face the repercussions, is to introduce the scheme completely and cleanly in one step—a typical official's view, some of you will think.

There is a school of thought, far less vocal than it used to be, which advocates the rent rebates, under which rents vary according to the tenants' ability to pay —those who can afford it paying the full economic rent. Matters of principle, difficult for an official, are involved here. The subject of rent rebates is a separate one with which I have dealt elsewhere. Perhaps I may be allowed to say I am not enamoured of rent rebates, but whether they are in operation or not, they do not affect the main principle for which I am contending: that in fixing rents of particular houses the criterion should be the letting value, and not the cost of construction and the amount of subsidy at the time it was erected. If the authority wishes to bring in additional criteria relative to the circumstances of the individual tenant, that is a separate matter.

Those authorities owning appreciable numbers of houses erected before 1919 are already faced with a ticklish problem—that of modernising the houses. Shortage of supplies makes this impracticable at present, but the time will come when local authorities will be compelled to undertake modernisation. Our methods of housing finance do not provide funds for this expenditure. Presumably, such expenditure would be financed from loan. If rents have been consolidated, the rents of the modernised houses would be raised to a level commensurate with the increase in their value and any difference between this and the loan charges would fall into the account to be spread ultimately over all the houses. If there is no consolidation scheme, unless part of the cost is to fall on rates, the rents would be raised by a sum sufficient to meet the loan charges. This might involve an unacceptable increase in rents.

Housing finance is one of those realms in which a good deal of initiative is still left to the local authority. The danger to under-rate the significance of the new costs and to fail to provide properly for renewals and replacements is great.

SAFETY REGULATIONS

H.M. INSPECTOR ADDRESSES ROOFING CONTRACTORS

EMPLOYERS who fail to comply with the Building (Safety, Health and Welfare) Regulations, 1948, are liable to a fine of up to £20 in cases where there has been no accident and up to £100 in cases which have involved injuries or death. The workman who fails to co-operate may be fined up to £20. These penalties, which are not mentioned in the Building Regulations, were announced by MR. H. B. O. MITCHELL, H.M. Inspector of Factories for the North-West London District, when he answered questions put forward by members of the London and Southern Counties Regional Association of the National Federation of Roofing Contractors at their annual luncheon at the Connaught Rooms, London, on Tuesday. The penalties could be imposed under the Factory Act of 1937, he said.

Following is a summary of his answers to other questions:—

There was no prospect of the Chief Inspector granting any exemption from the Regulations at the moment. The clause in Regulation No. 2, paragraph 2, looked to the future when new methods might be adopted which would make compliance with the regulations impracticable. Under such circumstances, exemption would be applicable to the whole industry, not to the individual.

The use of slate or tile battens as a place from which work could be done would depend on the circumstances in each case. The batten might be used for a short job, but if the work was continued over a period it would be a breach of the Regulations not to use scaffolding.

If a disagreement arose between the employer and workman as to what constituted a "suitable and sufficient scaffold" it was open to the workman to take the matter up with the Factory Inspector, who could then state the case against the employer in a court of law.

Regulation No. 31, paragraph 2, which stated that work on roofs under certain conditions should be done only by workmen who were suitable for such work, did not mean that only slaters and tilers should carry out roof repairs. The sole criterion was whether the workman was physically or temperamentally capable of working on the roof.

The Regulations required the fixings of a scaffold to have a horizontal pull. The bracket scaffold fixed in a 3 ft. high brick joint and having a turn up of 3½ in., with teeth on the top edge, would not comply with the Regulations as it was not reliable. In 1947 there had been 10 cases of scaffolding falling when this support was used.

If a roof of over 34 deg. pitch, and with the possibility of a workman falling more than 6 ft. 6 in., was being stripped and re-covered, battens could not be considered as adequate hand-hold. In all extensive work likely to last more than a few hours, scaffolding must be used.

A crawling board made of 2 in. by 1 in. battens well nailed would be considered suitable for use on a slate roof, but not for use on a fragile roof, such as one of asbestos cement.

If employers encountered cases in which it would seem impracticable to erect a working platform, they should communicate with their Factory Inspector, who would send an engineering inspector.

In cases where two or more men were sent to carry out roofing work and there was no main contractor on the site and no temporary office or store required, the employers need not anticipate any difficulty with factory inspectors with regard to the Health and Welfare Regulations Nos. 80 and 81. In such cases the householder would always be prepared to provide some sort of accommodation for the men.

Mr. Mitchell provided no answer to the questioner who pointed out that the Ministry of Health has stated that no scaffolding need be used in the roof work on an Airey house and asked how this affected the Regulations. He promised to look into the matter. In reply to a question as to how the Regulations would affect the employer who relied on what were known as "soleing and heeling" jobs, in which the cost of scaffolding would outweigh the fee obtained for the work, he said that a great many of these employers would suffer.

"THREE-FOLD" CO-OPERATION

MR. D. C. BURGESS ON PRECEPT AND EXAMPLE

THREE aspects of co-operation were described by MR. D. C. BURGESS, President of the London Master Builders' Association, when he spoke at a luncheon recently given in his honour by Central No. 2 Area.

"During the nine months or so I have been President," said Mr. Burgess, "I have made a plea for employers to consider the problem of the two sides, as we still unfortunately call them, of the industry. There have been many who agree with me that we must face the fact that either we lead the industry ourselves or it will be led by others. Some have said that I have been idealistic in my approach to the problem. I am not going to argue about that—it has not appeared in that light to me.

"But co-operation with the operatives is not the only co-operation we must give if we seek to get our industry into a really healthy condition. There is co-operation with the Government to-day. Whatever Government we have or may have to-morrow, it is bound to be concerned in large measure with industry. Industry is the life-blood of the country, and because of that no Government can be unconcerned with its conduct. The better the Government in fact, the greater the interest it will take in all those things which affect the life of the citizen. With that we must all agree.

"But there is a big difference between being interested and being actually helpful. The degree to which anyone can be helpful depends on his knowledge of the circumstances and on his technical capacity. And that is where we, as building trade employers, come in.

"As leaders of the building industry we have both technical knowledge and experience to offer to the Government of the day, and we must see to it that the country never suffers because we are unwilling to supply these ingredients which we are privileged to have in good measure.

"Proper help and guidance cannot be given to the country's industry without the Government. They cannot apply it without us.

"A few weeks ago I spoke on the shortage of cement and asked for co-operation on the part of the planners. The reaction on the part of the authorities was to gloss over the cement difficulties and blame transport. They said that there was not a real shortage anyway. Nevertheless, a few days later they announced that arrangements had been made to import cement from Germany. Then, on October 22, I noticed an announcement on the W.B.A. Priority Distribution Scheme in the following words:—'The procedure known as site building assistance has been of special value during the past summer in dealing with shortages of cement.'

"This would appear to be a scheme of special value for dealing with something that did not exist. How very much better it would have been if the authorities had taken more heed of our representations on the Advisory Council.

Parties to the Contract.

"There is a third co-operation which I should like to see more effective," continued Mr. Burgess. "That is the proper co-operation of all the parties to a contract. The conception of a fair contract is based on the assumption that all will loyally carry out the intention as well as the wording of the contract. The contractor would soon be brought up with two round turns and a half hitch if he failed to do what he had undertaken to do. There is, unfortunately, no way in present conditions of insisting that the building owner, who is in the vast majority of cases not a private citizen, carries out his part of the bargain, namely, that of paying promptly the intended proportion of the value of work done.

"He, and this word 'he' includes the local authority, the War Damage Commission and the various spending departments of the Government, dodges the column in all sorts of ways. For instance, the contract specifies the time in which a certificate shall be paid. But if it is not convenient to pay, no certificate is made out until it is. The War Damage Commission, though they are in fact, and of course must realise it, the source of finance in the majority of all war damage jobs, are not the parties to the contract. The L.C.C. have so much work on that although the checking of accounts is months behind hand there is nothing they can do about it except to get on with the building of more flats and houses at an ever-increasing pace. The Government Departments—well, they are machines and like the mills of God which grind exceedingly small, they grind exceedingly slow.

"How very much more happily our industry could be carried on if only the building owner was never—dare I say?—'tricky' in dealing with his side of the bargain," concluded Mr. Burgess. "A return to the standard of conduct in these matters that obtained before the war would have the immediate effect of lowering costs, and as this is the desire of every one of us, I suggest this is one way by which the Government could provide example as well as precept."

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NEWS IN BRIEF

A Correction.

In a few early copies of our issue dated November 5 the text of the advertisement for Dowsett Group on page 43 contained, as a branch address, "Stafford, Lincs." This should have read "Stamford, Lincs."

R.I.B.A. Golfing Society.

The last meeting of the R.I.B.A. Golfing Society for the current season was held at Sudbury Golf Club on October 20. The Selby Cup and Spoon were won by G. F. Wilson with a score of 81−5=76. The runners-up were A. H. Walker, 82−5=77; W. R. F. Fisher, 86−9=77; F. T. Smith, 90−13=77. The afternoon four-ball bogey competition was won by A. D. McGill and E. H. Firmin with a score of 2 up.

Timber Control Appointments.

The Board of Trade announces the appointment as Director of Trade Production (Home Grown—Department II) of the Timber Control, of Mr. Charles J. Venables in succession to the late Mr. F. J. Bailey. Mr. Venables took up his duties at the headquarters office of the Timber Control at Clifton Down Hotel, Bristol, 8, on November 9. Mr. J. W. Telford, hitherto Assistant Area Officer, has been appointed Area Officer, Area 1, Newcastle, in succession to the late Mr. J. S. Atkinson.

A Diary for Building Technicians.

The "Building Technician's Diary, 1949," issued by the Association of Building Technicians, has, as usual, been checked and brought up to date. In the diary section there are maps, calendars, ruled graph paper and blank memo pages. It is bound in imitation leather with a pocket at the back. The price is 5s. Orders should be sent to the secretary, Association of Building Technicians, 5, Ashley-place, S.W.1.

National Plumbing Studentships.

The object of the National Plumbing Studentships introduced by the Plumbing Trades National Apprenticeship Council is to spread knowledge of improved techniques by enabling promising men to visit works, inspect plumbing installations and make special studies to increase their knowledge of the materials with which they work, and of plumbing practice in areas other than their own. The studentships scheme will be administered by an awards council on which are represented the Institute of Plumbers, Plumbing Trades National Apprenticeship Council, The National Joint Industrial Council for the Plumbing Trade, and the organisations contributing to the scheme. There are to be four studentships of £50 each. Studentships will be open to candidates up to the age of 26 years who have passed the final examination in plumbing of the City and Guilds, and have served an apprenticeship under the Plumbing Trades Apprenticeship Scheme, the Scottish scheme or other scheme approved by the awards council. The age limit may be extended in the case of interrupted apprenticeship due to National Service or other special causes approved by the awards council. Application forms may be obtained from the secretary of the awards council, Hammersmith School of Building, Limegrove, Shepherds Bush, W.12.

THE SCOTTISH BUILDER

NEW BUILDINGS

Bishopbriggs.—Miller & Ferguson, Ltd., Kenmair works, are to reconstruct and add to the buildings destroyed by fire.

Glasgow.—Alterations and additions proposed for Roberts Stores, Ltd., at Trongate, for which the architects are Wright & Kirkwood, Blytheswood-sq., Glasgow.

Glasgow.—Alterations and additions at Nithsdale-rd., for which the architect is W. MacLachlan, 6, Beaton-rd., Glasgow.—Scheme of houses proposed at Manor-rd. and Eastcoat-ave., for which the architects are J. Laird & Son, 87, St. Vincent-st., Glasgow.—Extensions and alterations for W. Milne, Ltd., for which the architect is W. A. Gladstone, 172, Bath-st., Glasgow.

High Blantyre.—New police station and houses to be erected, for which the architect is W. Watt, Albert-rd., Motherwell.

Kirknewhill.—Cottages to be erected at Blackwoodyards, for which the architect is R. T. Koss, Avondale-st., Strathaven.

FUTURE CONSTRUCTION

PUBLIC APPOINTMENTS

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

NOVEMBER 17.

†**Kingston-on-Hull T.C.**—First instalments of Bricknell-ave. Boys' School and Francis Askew School new junior and infants' dept. City A. Dep. £2 2s. Tenders by December 15.

NOVEMBER 19.

†***Merton and Morden U.D.C.**—16 flats (contract No. 25) at Morden-rd. H. May, C., Morden Hall, S.W.19. Dep. £3 3s. Tenders by December 14.

NOVEMBER 20.

Bridgnorth R.D.C.—Six houses at Worfield. Henry Vale & Sons, 21, Waterloo-rd., Wolverhampton. Dep. £2 2s.

NOVEMBER 22.

†***Banstead U.D.C.**—50 houses at Preston-la. estate, Tadworth. C., Council House, Brighton-rd. Dep. £2 2s.

†***Carshalton U.D.C.**—Six maisonettes at Harrow-rd. and 6 flats at Banstead-rd. C., Council Offices, The Grove, Carshalton.

Kingsbridge R.D.C.—Three pair blocks of houses at Thurlestone. H. Parsons, Architect, Council Offices, Manor House. Dep. £2 2s.

NOVEMBER 23.

Cookham R.D.C.—Six houses near Hurley Village. J. H. Beevis, Architect & S. Dep. £2 2s.

Hiraethog R.D.C.—12 houses. J. Roberts, C., Avondal, Llanrwst, Denbighshire. Dep. £3 3s.

Wardle U.D.C.—Memorial pavilion at Wardle-rd. S., Council Offices, Wardle-rd. Dep. £2 2s.

NOVEMBER 24.

***Radcliffe T.C.**—Work in various trades for 60 houses at Ainsworth housing site. B.E. & S., Town Hall. Dep. £2.

NOVEMBER 26.

Pembroke R.D.C.—Eight Airey houses at Rhoscrowther. J. Owen Parry and Lewis, Ammanford. Dep. £3.

***Rowley Regis T.C.**—58 houses at Brickhouse Farm estate. B.E. & S. Dep. £2 2s.

***Southend-on-Sea C.B.**—Conversion of 273, London-rd. into 4 flats. B.E. Dep. £2.

NOVEMBER 27.

Isle of Man Health Services Board.—Six cottages at The Strang, Braddan. Davidson, Marsh & Co., 16-18, Athol-st., Douglas. Dep. £2 2s.

†***Lincoln (Parts of Kesteven) C.C.**—Houses at Langtoft Small Holding No. 1. County A., County Offices, Sleaford. Tenders by December 14.

Llandilo R.D.C.—16 houses at Bontllwyn. E. & S., Council Offices, Crescent-rd. Dep. £2 2s.

Skelmersdale U.D.C.—48 houses at Windrew's Farm. J. L. Mather, E. & S., Town Hall. Dep. £5 5s.

***Stepney B.C.**—War damage repairs, etc., to various properties. Chief Technical Officer for War Damage, 191-193, Commercial-rd., E.1 Dep. £2 2s.

NOVEMBER 29.

***Barton-upon-Humber U.D.C.**—16 houses at Tofts-rd. estate. J. M. Bott, C., Council Offices. Dep. £2 2s.

***Carmarthen R.D.C.**—110 houses in 12 contracts with roads and sewers at various sites. G. G. Thomas, 3, Spilman-st., Carmarthen. Dep. £3 3s.

Southampton C.B.—Six "Cost of Works" houses at Magnolia-rd., Merry Oak, Bitterne. Boro' A. Dep. £2.

***Uxbridge U.D.C.**—80 dwellings at Evelyn's estate, Hillingdon. E. & S., 265, High-st., Uxbridge. Dep. £3 3s.

Wells-next-the-Sea U.D.C.—Four lock-up shops with flats over at Northfield-la. R. O. Bond (F.), Mountergate, Norwich. Dep. £1.

West Bridgford U.D.C.—44 houses at Valley-rd. estate. E. & S., The Hall. Dep. £2 2s.

***Weymouth and Melcombe Regis T.C.**—Public conveniences at Motor Coach Park, Westham. B.E. & S. Dep. £1 1s.

NOVEMBER 30.

***Southampton C.B.**—War damage repairs to 2 classrooms at Middle-rd. schools, Sholing. Boro' A. Dep. £1.

DECEMBER 1.

***Blackpool C.B.**—Six shops, flats and garages at Grange Park estate. B.S. Dep. £2 2s.

Neath T.C.—(1) 24 houses with drains and services; (2) soil sewers for same; (3) 18 houses with drains and services; (4) soil sewers for same. B.E., Gwyn Hall, Neath. Deps. £3 3s. for (1); £1 1s. for (2); £3 3s. for (3); £1 1s. for (4).

DECEMBER 2.

Burgess Hill U.D.C.—Eight houses at West Park estate. F. E. R. Hogg, E. & S., 32, Church-rd. Dep. £2 2s.

***Wem R.D.C.**—Conversion of hutments at Bridleway-gate, nr. Wem, into 20 dwellings. Hind and Brown (L. & A.), District Bank-chbrs., 2, Market-st., Hanley, Stoke-on-Trent. Dep. £2 2s.

DECEMBER 3.

Stanley (Yorks) U.D.C.—26 houses. J. Hustwit, E. & S., Council Offices, Coach-rd., Outwood. Dep. £2 2s.

DECEMBER 4.

***Dunstable T.C.**—20 single-bedroom flats at Beecroft estate. R. R. Hole (L.), B.S., Municipal Offices. Dep. £2 2s.

***Menai Bridge U.D.C.**—10 houses at Tyddyn To. Roland T. Jones, architect, Midland Bank-chbrs., Bangor. Dep. £2 2s.

***Tonbridge U.D.C.**—48 houses at Brook-st. estate. E. & S., Tonbridge Castle. Dep. £3 3s.

DECEMBER 6.

***Pembrokeshire E.C.**—Erection of Haverfordwest Modern Secondary School. Walter Barrett, M.B.E. (A.), County A., County Offices, Haverfordwest. Dep. £5 5s.

***Southampton C.B.**—Conversion of decontamination centre to day nursery, Northlands-rd. Boro' A. Dep. £1.

***Wandle Valley Joint Sewerage Board.**—Conversion of Manager's House (No. 2, East-rd., Wimbledon) into 2 flats. S., Town Hall, Mitcham.

DECEMBER 10.

Salford T.C.—22 houses with site works at Seedley-rd. City E. Dep. £2 2s.

***Salford T.C.**—Eight houses with site works at Eccles Old-rd. City E. Dep. £1 1s.

DECEMBER 13.

***Burnley C.B.**—Extensions at Townley Technical High School. B.S. Dep. £2 2s.

DECEMBER 15.

***Brighton C.B.**—32 flats in 2 blocks at Hollingbury estate; 40 houses, section 1D; and 40 houses, section 1E at Lower Bevendean estate. B.E. & S., 29-30, King's-rd. Dep. £2 2s. each group (payable to Boro' Treas.).

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

NOVEMBER 20.

†***Essex C.C.**—External painting at Palmers Endowed School for Boys, Grays, and Caretaker's House. H. Conolly (F.), County A.

NOVEMBER 22.

Brierley Hill U.D.C.—Painting and decorating at Town Hall. R. H. J. Comber, Hawbush House.

NOVEMBER 23.

Rochdale T.C.—Internal painting at 2 schools. B.S.

NOVEMBER 25.

Cardiff R.D.C.—Internal and external painting and repairs at Council Offices. E. & S., 20, Park-pl. Dep. £2 2s.

ROADS, SEWERAGE AND WATER WORKS

NOVEMBER 18.

†**Cambs C.C.**—Construction of reinforced concrete road at Fen Bank, Isleham. County S., Shire Hall. Dep. £2 2s.

NOVEMBER 22.

Edinburgh T.C.—Roads, sewers and bridge at Westfield Flats, Gorgie. City E., 329, High-st.

NOVEMBER 24.

Worthing T.C.—Making-up Cranleigh-rd. B.E. Dep. £2 2s.

NOVEMBER 27.

Mitford and Launditch R.D.C.—800 sq. yds. of tarsprayed macadam road with kerbing, etc. H. Marsh, 14, King-st., King's Lynn. Dep. £2 2s.

NOVEMBER 29.

Cambridge T.C.—Final roadworks at Green Park housing scheme. B.S. Dep £3 3s.

Luton R.D.C.—Roads and sewers, etc., at Hockliffe site. E. & S., 73, West Parade, Dunstable. Dep. £2 2s.

DECEMBER 1.

Shrewsbury T.C.—Roads and sewers at Oakfield estate Part 2. B.S. Dep. £2 2s.

DECEMBER 4.

Horsham R.D.C.—Roads and sewers and sewage disposal works at Shipley. S., Comewell House, North-st.

JANUARY 1.

Bedford Corporation Waterworks.—Modification and enlargement of existing reservoirs. G. H. Hill & Sons (Manchester), 51, Mosley-st., Manchester 2. Dep. £5 5s.

NO DATE.

***Beds E.C.**—Excavation and site works at Leighton Buzzard Beaudesert County Primary School; Secondary Grammar-Technical School, Biggleswade; County Primary School, Dunstable; County Primary School, Caddington; County Primary School, Totternhoe. County A., Shire Hall, Bedford.

***Linslade U.D.C.**—Roads, sewers and drains at Soulbury-rd. H. A. Rolls, chartered architect, 15, Bridge-st., Leighton Buzzard. Dep. £2 2s.

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(LONDON)

Brentford.—BANK BRANCH.—Midland Bank, Ltd., Poultry, E.C.2, propose branch premises, 39-41, Boston Manor-rd. Architects, Whinney, Son and Austen Hall, 37, Norfolk-st., W.C.2.

Brentford.—REBUILDING.—46-48, Burford-rd. for W.D.C. Architects, Austin Farr & Co., 11, South-rd., Southall, Middx.

Cricklewood.—REBUILDING.—Of 2, St. Paul's-ave., for W.D.C. Architect, B. W. H. Scott (F.), 25, Bedford-row, W.C.1.

Herne Hill.—FLATS.—Plans by G. E. Bright (F.), 34, Welbeck-st., W.1, for 42 flats.

Kingston-on-Thames.—OFFICES.—Surrey local executive council proposes office premises. Plans by P. J. B. Harland (F.), 15, Robert Adam-st., Baker-st., W.1.

Pimlico. — HOUSING. — Westminster C.C. instructed Powell and Moya, architects, to prepare plans for blocks 7, 8, 11, 12, 14 and 16 of Section 1 of the Pimlico housing scheme.

Plumstead.—TEMPORARY HOUSING.—Woolwich B.C. to acquire site at Blithdale-rd., Woodhurst-rd. and Warwick-terr for temporary housing.

Plumstead. — HOUSING. — Woolwich B.C. to acquire 175, Plumstead Common for housing purposes.

Wandsworth.—HOUSING.—B.C. to acquire 5, Atney-rd. for housing.

Westminster.—BUILDINGS.—Erection of shops, offices and public-house at site bounded by 55-56, St. James's-st., 2-6, Bennett-st., and 8, Arlington-st., approved in principle by C.C.

Westminster.—REBUILDING.—For medical purposes, site bounded by Vincent-sq., Osbert-st., Vauxhall Bridge-rd., and Hatherley-st., agreed to in principle by C.C.

Woolwich. — TEMPORARY HOUSING. — B.C. to acquire site at Well Hall-rd. for temporary housing.

(PROVINCIAL)

Amblecote.—U.D.C. approved pavilion at football ground for cttee. of Stourbridge Football Club.

Bath.—Conversion into housing units of 1-8, Norfolk-cres. and Norfolk House. Architect, F. E. Tew, Northumberland-bldgs.

Bebington.—Metal Industries, Ltd., propose factory at Industrial Trading Estate, Bromborough. A. E. Shennan (F.), North House, North John-st., Liverpool 2.

Birkenhead.—T. D. Clarke proposes rebuilding Argyle Theatre, Argyle-sq., W. Segar Owen (F.), Palmyra-sq.-chbrs., Warrington.

Birmingham.—Health Cttee. propose maternity hospital and nurses' quarters at Perry Barr.

Bolton.—T.C. approved:—Extensions to works at Back Bury-rd. and Back Heywood-rd. for Bolton Engineering Co., Ltd.; alterations to factory at Breightmet-st. for Bedding (Bolton), Ltd.; works canteen at Back Norwood-gr. for Ormrod, Hardcastle & Co., Ltd.; extensions to Co-operative Stores, 33, Westbourne-gr., for Bolton Co-operative Society, Ltd.; extensions to Oakenbottom Mill, Bury-rd., for F. S. Shorrocks; office block at Bolton Royal Infirmary for Hospital Management Committee.

Bootle.—Cttee. of Y.M.C.A. branch propose headquarters at 150-152, Stanley-rd.

Bournemouth.—E.C. approved Charminster county sec. mod. sch. at £200,000. Boro' A., John Burton (F.).

Brighouse.—T.C. approved hostel and bridge across River-st. at Woodhouse works for J. Blakeborough & Sons, Ltd.

Bromsgrove.—R.D.C. propose 128 houses at Shaw-la. site, Stoke Prior. H. T. W. Gough (L.), arch., 45, Newhall-st., Birmingham.

Chatham.—Layout for housing development of Leyton-ave. and Allison-ave. prepared by J. D. Walters & Son, Ltd., builders, 9, New-rd.

Chester-le-Street.—A. M. Fennell, Bridge-end Chambers, is architect for ice-cream bar, etc., at Barrack-rd., Newcastle.

Coventry.—New development scheme for Coventry schools includes prim. schs. at Canley (£96,000); Keresford Grange (£100,000); Radford; Spon-st. (£50,000); Walsgrave (£90,000); Whitley Abbey (£40,000); St. Mary's R.C. (£50,000); All Saints C.E. (£50,000); Foleshill C.E. (£90,000); St. John's C.E. (£50,000); St. Mark's C.E. (£50,000); Walsgrave C.E. (£50,000); Westwood C.E. (£50,000); Willenhall C.E. (£90,000). On Whoberley county sch. £100,000 is to be spent.

Dudley.—Quantities completed for 1st stage of Bradford-rd. sch. for E.C. G. Blackman (A.), Priory Hall.

Eastbourne.—Rebuilding as flats of Seaford-mans., Jevington-gdns., for W.D.C. Kenneth F. Wray (F.), 43, Gildredge-rd.

Exeter.—Plans for rebuilding 12 almshouses, etc., at Clifton-rd. Architects, H. M. Drury, Church House, The Close.

Hastings.—Alterations to 66, High-st. for Midland Bank, Ltd., Poultry, E.C.2. G. H. Goldsmith (F.), 44, Great Russell-st., W.C.1.

Hexham.—Northumberland E.C. to purchase Hydro Hotel and convert it into teachers' training college. Cost of alterations, £48,000. C.A., W. W. Tasker, County Hall, Newcastle.

Hindley.—U.D.C. approved Labour club premises, Platt-st., Platt Bridge, for cttee. of club.

Ilkeston.—Home Brewery, Ltd., have had plans approved for hotel at Park-rd. Architect, H. Tatham Sudbury, Wayside, Longfield-la.

Liverpool.—City C. to erect 396 3-storey flats at Speke and 20 flats at Cantril Farm estate.

Liverpool.—M.H. granted allocation of 1,678 houses to City C.

Liverpool.—City C. to proceed with erection of 108 dwellings at Stockbridge-la. and Knowsley-la. in February.

Manchester. — T.C. approved: — Dining-room and kitchen at Queen-st. sch., for E.C. (L. C. Lomas (F.), City A., Town Hall); shop at Victoria-ave., Blackley, for Blackley Co-operative Society, Ltd., Market-st., Blackley; rebuilding works destroyed by fire at Ashton New-rd., Clayton, for British Recovered Rubber Co., Ltd. (Cruickshank & Seward (F.), 16, Princess-st.).

Manchester.—T.C. approved:—Office block at Ashton New-rd., Clayton, for R. W. Morrison, Ltd.; additions to dairy at Kirk-rd. and Lloyd-rd., Levenshulme, for Dobson's Dairies, Ltd.; stores and offices at Booth-st. East, Rumford-st., for R. Horner & Co. (Roberts & Roberts, architects, 40, King-st.); arcade and shops at 32, Deansgate for Manchester Temperance Hotels Co., Ltd. (T. P. Oakley & G. Sanville (F.), 60, King-st.); Social club at Greenwood-rd., Northenden, for cttee. of Wythenshawe Labour Party; workshop at Dean-rd., Gorton, for Lewis & Co. (A. Wych (L.), 13, Hyde-rd., Denton).—T.C. to seek permission to erect 600 houses at Woodhouse-pk. and Moss Nook estates, Wythenshawe.—T.C. approved:—Dining-room and kitchen at St. Catherine's R.C. schs., School-la., Didsbury, for E.C. (L. C. Howitt (F.), City A., Town Hall); chemistry laboratory at Burlington-st. and Wright-st., Chorlton-upon-Medlock, for Victoria University Authorities (Thomas Worthington & Sons (FF.), 176, Oxford-rd., Chorlton-upon-Medlock).

Mansfield.—T.C. approved additions to works, Harrington-st., for Mansfield Hosiery Mills, Ltd.

Middleton.—T.C. propose 68 houses and 17 by private builders. Quantities by A. Leach, Fountain-st.

Newcastle.—Landauer Packing Co., Cheviot-view, to make extensions. Architect, W. Riddle, 33, Jesmond-pk. west.

Newcastle.—Express Joinery Works, Dimsdale-pl., to build offices. Plans by G. B. Porteous, 4, West-ave., Gosforth.

Newcastle.—Marshall and Tweedy, Grainger House, Blackett-st., are architects for store at Friars-rd. for Christie Malcolm, Ltd.

Newcastle (Staffs).—T.C. approved houses and garage, 2, Grosvenor-rd., for R. Tunnicliffe (A. Cotton & Son, architects, Piccadilly, Tunstall, Stoke-on-Trent); cinema at Talke- and Wolstanton-rds. for A. Cotton & Son, architects, Piccadilly, Tunstall, Stoke-on-Trent.

Newport (Mon.).—E.C. to convert Alexandra-rd. sch. into sec. sch. Johnston Blackett (F.), Town Hall.

Northampton.—Wood Bros. & Runham, Ltd., Bridge-st. and Cattle Market-rd., propose showroom and works (M. Rosser (F.), 20, Derngate).—Northants C.C. propose dining-room and kitchen at Silverstone county sec. sch.

Northumberland.—New pit-head baths to be built at Ashington, Northumberland. Plans by R. Burke, Lambton House, Newcastle.

Northumberland.—E.C. to build canteen at Newbiggin West C.P. sch. W. W. Tasker, arch., County Hall, Newcastle.

Northumberland.—C.W.S. to build creamery at Alnwick at £40,000. Plans by C.W.S. Architect's Dept., 90, Westmoreland-rd., Newcastle.

Oldham.—T.C. approved:—Extensions to laundry at Chamber-rd. for Ashworth's Laundry, Ltd.; reconstruction of works at rear of Malby-st. for L. Brimelow & Sons; British Legion members propose headquarters at Grosvenor-st.

Oldham.—T.C. approved alterations to factory at Glodwick-rd. for West End Manuf. Co., Ltd.; alterations to bakery, 355, Ripponden-rd., for C. Gartside; rebuilding works at Wrigley-st. for Buckley & Taylor, Ltd.; extensions to Atlas works, Connaught-st., for George Orme (Meters), Ltd.; extensions to club premises at Bower-la. for cttee. of Hollinwood and South Chadderton Labour Club; additions to club premises, Chadderton-rd., for Trustees of Westwood Conservative Club.—T.C. appointed A. Pursglove, P.A.S.I. (A.), 88, Mosley-st., Manchester 2, to prepare quantities for 80 "No fines" concrete houses on Limeside estate.

Radcliffe.—T.C. propose 78 houses and bungalows at Ainsworth site.

Rochdale.—T.C. approved:—Alterations at Upper Trows Works, Trows-la., for Taylor Bros.; additions at Fieldhouse Mills, Fieldhouse-rd., for John Bright & Bros., Ltd.; additions at Passmonds Mill for S. Heywood & Sons, Ltd.; houses at King-st. South for H. Booth; additions at Elm Works, Mere-la., for Milne & Longbottom, Ltd.

Rotherham.—T.C. approved—Extensions to brewery at Greasbrough-rd. for Mappins Masbro' Old Brewery Co., Ltd.; extensions at carpet factory at Eastwood Trading Estate, Fitzwilliam-rd., for Van den Burgh Carpets, Ltd.

Rotherham.—T.C. approved:—Additions to bakery at Greasbrough-rd. for Home Baking Co., Ltd.; canteen and welfare dept. to Templeborough Works for Steel, Peech & Tozer.—Tennant Bros., Ltd., brewers, Bridge-st., Sheffield 3, propose hotel at Brecks-la.—Cttee. of British Legion propose headquarters at Wood-la., Canklow.

Salford.—T.C. approved:—Factory at 82, Buckingham-st. for Boldalloy, Ltd.; factory at 6, Upper Camp-st., Broughton, for S. Raven & Co., Ltd.—Sinclair's Steel Erectors, Ltd., Chester-rd., Old Trafford, Manchester 16, propose factory at Duchy-rd., Pendleton.

Seaburn.—Sunderland T.C. to develop Seaburn as holiday resort at £1,000,000. B.E., J. E. Lewis.

Shenfield.—Proposed electricity sub-station for British Railway Executive. Chief civil engineer, J. I. Campbell, M.I.C.E., Chief Engineer's Office (Eastern Region), King's Cross Station, N.1.

Stockport.—T.C. approved:—Additions at factory, Vernon Mill, Mersey-st., for P. Leach Productions, Ltd.; houses at continuation of Dial Park-rd. for T. Fryer & Co., Ltd.; works canteen at Conway-st. for Storey Foundry Co., Ltd.—T.C. propose nursery sch. at Stringer-st. and branch library at Reddish-rd., Reddish.

Stockport. — T.C. approved: — Additions at Vauxhall Works, Reddish, for Craven Bros., Ltd.; additions at Waterloo Hotel, Waterloo-rd., for R. Bell & Co., Ltd., brewers, Hempshaw-la.; offices at rear of 246, Wellington-rd. South for J. Blower; flats at Dodge-hill for H. Hitchen; works canteen and kitchen and office at Hempshaw-la. for Battersby & Co., Ltd.

Stockton-on-Tees.—R.D.C. housing programme to comprise 142 houses.

Stretford. — T.C. approved: — Additions to works at Cornbrook Park-rd. for F. Yeadon & Taylor, Ltd.; 12 flats at Edge-la. and King's-rd., for R. W. Willan, 2, Brooklands-rd., Sale; 16 houses, Clyne-rd. and Railway-rd., Lancashire County Constabulary, County Offices, Preston; rebuilding 5 houses, 94-102, Humphrey-rd., for M. Stanley, Ellis & Son, etc. (J. Price Nunn & Partner (F.), 180, Oxford-rd., Manchester 13).

Sunderland.—E.C. to build a new grammar school. Plans by J. Murray, E.C. Architect, Ed. Offices, John-st.

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Sunderland.—T.C. asked M.H. for allocation of 100 houses. B.E.

Thornaby-on-Tees.—T.C. proposes 200 houses in 1949.

Urmston.—U.D.C. approved residential hotel at Cornhill-rd., Davyhulme, for Gartsides (Brookdale Brewery), Ltd., Ashton-under-Lyne. —Rev. J. Lowry, vicar, and Parochial Council of Church of St. Mary, Davyhulme-rd., Davyhulme, propose memorial vestry and parish room to church. Architect, W. Longworth, Crofts Bank-rd.

TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government departments.*

Aylesbury.—10 houses at Stoke Mandeville and six at Stone, for R.D.C.: *F. W. Metcalfe, £13,482.

Barnard Castle.—Eight houses at Evenwood, four at Gainford and further two at Evenwood, for R.D.C.: *R. C. Williamson, Ltd., Evenwood, C. Durham.

Blackburn.—Extensions to engineering works, Witton, for Hindle, Sons & Co., Ltd. W. Greenwood, architect, 11, Richmond-st.: *E. Lewis & Sons, Shorrocks Delph, Blackburn.

Bolton.—Works canteen at Flash-st. Mills, Ormrod, Hardcastle & Co., Ltd. Plans by Architect's Dept., Fine Spinners & Doublers, Ltd., St. James'-sq., Manchester 2: *William Gornall & Sons, Ltd., 111, Ellesmere-st., Bolton.

Boston.—10 bungalows at Park, Sutterton: *H. H. Adkins (Boston), £11,494; four pairs of houses at Church Green-rd., Fishtoft: *Alec Wright, Boston, £11,608; one pair of aged persons' bungalows at Commonside, Old Leake: *W. J. Gresham & Sons, Old Leake, £2,413 (both subject to M.H. approval).

Brighouse.—18 houses at Granny Hall Park, for T.C. H. A. Sneezum, A.M.Inst.C.E., B.S.: *Rowland Lumb & Co., 30, Huddersfield-rd., Brighouse (in lieu of tender previously accepted).

Bromsgrove.—20 additional houses at Aston Fields site, for U.D.C. F. W. Goodman, A.M.Inst.C.E., S. Quantities by Baylis & Baylis, F.S.I., 118, Colmore-row, Birmingham: *Shipway & Partners, Northfield, Birmingham.

Caterham and Warlingham.—12 flats and four houses at Banstead-rd. site No. 18: *Woodcock, Marshall & Co., Ltd., £15,910 (revised offer).

Chester.—County secondary school at Handbridge, for T.C. C. Greenwood (L.), City S.: *Herbert Joyce & Sons, Ltd., Martin Bank-bldgs., Clifton-st., Blackpool, £94,230.

Chesterfield.—18 houses at Wingfield-rd., New Tupton, for R.D.C. J. B. Wikeley, M.Inst.C.E., S., The Rural Council House, Saltergate: †Direct Labour, £28,838.

Chesterfied.—42 houses at Highfield-rd., for T.C. W. S. Wilson, M.B.E., M.I.Mun.E., B.S.: *A. Heath, Old-rd., Brampton (18); *E. Beresford, 153, Boythorpe-rd. (14); *W. H. Frearson, Dunstall-rd., Little Moor (10). (All of Chesterfield.)

Coulsdon and Purley.—18 houses at Dulverton-rd., for U.D.C.: *R. F. Warry, Ltd., £26,280.

Droitwich.—14 houses at Corbett-av. and Lyttleton-rd. sites, for T.C. G. L. Robinson, M.I.Mun.E., B.S.: *George Harrison & Son (Builders), Ltd., Tower Hill, Droitwich.

Fletton.—14 houses at Chapel-st., Stranground, for R.D.C.: *G. Matthews & Sons, High-st., Eye, Peterborough.

Goole.—Houses for R.D.C. Six at Swineflat and four at East Cowick: *Durham and Ramsey, Snaith, £6,900 and £4,397; four at Airmyn: *E. Cutts, 20, High-st., Airmyn, £4,331.

Hammersmith.—32 flats at Frithville-gdns. site (west side): *Direct Labour, £62,729.

Hendon.—32 houses at Kenilworth-rd. estate: *Matthew James & Co., Ltd., £43,070; 11 houses at Prayle-gr.: *Roger Malcolm, Ltd., £15,008.

Holborn.—Conversion into 25 flats of Premier House, Southampton-row, for B.C. S. A. G. Cook, Boro' A.: *Higgs & Hill, Ltd., Crown Works, South Lambeth-rd., S.W.8.

Hull.—32 houses at Holderness-rd. site, for T.C. A. Rankine (F.), City A.: *E. Mowforth, Thwaite-st., £16,486 (14); *J. L. Spooner, Ltd., 152, Durham-st., £22,946 (18). (Both of Hull.)

Ince-in-Makerfield.—40 houses at Petticoat-la., for U.D.C.: *J. Gappney & Son, £46,238 (subject to M.H. approval).

Lancashire.—Painting and decorating work on schools, for C.C. Haslingden Grammar, Rivington and Blackrod Grammar and Harper Green secondary school: *A. Entwistle, Bolton-rd., Farnworth, nr. Bolton, £4,715; Balshaw's Grammar School, Leyland: *C. A. Kirkham, 64, Buckingham-rd., Chorlton, Manchester 21, £1,275; Boys' Grammar & Manchester-rd. schools,, Leigh: *F. & J. Pilling Bros., Ltd., Birch-la., Longsight, Manchester 13, £4,257; Crompton Secondary and Crompton House C. of E. schools, Oldham and Heginbotham School of Art, Ashton-under-Lyne: *J. Alcock, 124, Clarendon-rd., Hyde, Ches., £1,666.

Leamington.—Six houses at Kinross-rd., for T.C.: *A. H. Spicer, £6,852.

Liverpool.—Works for T.C. 676 dwellings at Speke: *Unit Construction Co., Ltd., 113, Bentham-dr., Liverpool 16, £793,846; 144 houses at Speke: *Unit Construction Co., Ltd., £235,924; reinstatement of six flats at Burlington-st. and Limekiln-la.: *Albert Bros., Ltd., 63, Erskine-st., Liverpool, £5,865; 20 houses with garages and 40 flats at Allerton-rd. and Heath-rd.: *Unit Construction Co., Ltd., £75,674; 40 aged persons' flats at Allerton-rd. and Heath-rd.: *Unit Construction Co., Ltd., £40,744; 40 flats at Fonteroy-st.: *Direct Labour, £92,500; 24 flats at Gerrard-st. scheme: *Direct Labour, £34,000; 51 flats and 35 garages at Queen's-dr.: *Direct Labour, £52,000 (all subject to M.H. approval); block of three classrooms at Stonebridge-la., Gillmoss, foundations, drainage, sanitary block, etc.: *Hale & Williams, Ltd., £6,947; supply and erection of components: *Bristol Aeroplane Co. (Housing), Ltd., £5,830 (subject to M.E. approval).

London.—Conversion into flats of 25, Queen Anne-st., S.W.1. Architects, Sir John Brown, A. E. Henson & Partners, 117, Sloane-st., Knightsbridge, S.W.1: *Winyards, Ltd., 104, Baker-st., W.1.

London.—Rebuilding of Temple Church. Architect, Walter H. Godfrey (F.), 81, The Causeway, Steventon, Abingdon, Berks: *Dove Bros., Ltd., Cloudesley-pl., Islington, N.1.

London.—Conversion into flats and consulting rooms, 50, Harley-st., W.1. Architects, Fairweather & Jordan (FF.), 26, Wigmore-st., W.: *Borgars, Ltd., 1, Marylebone-st., W.1.

London.—Reconstruction of office buildings, 92-94, Gracechurch-st., E.C. Architects, Henry C. Smart & Partners, 129, Moorgate, E.C.2: *W. Dale & Co., 11, Cullum-st., E.C.3.

L.C.C.—Contracts exceeding £2,500 in value placed by L.C.C. during period ended November 4: Electrical installation at Hanley School, Islington, Holmes & Larkinson, Holloway; Electrical installation at John Ruskin School, Southwark, Reliance Electrical Co., Ltd., Erith; Repairs at Malmesbury-rd. School, Bow and Bromley, A. J. Dunning & Sons (Weyhill), Ltd.; Structural repairs to gymnasium block at Furzedown Training College, Streatham, George W. House & Sons, Ltd.; Replanning of kitchen and stores for meals service at Aske's, Hatcham, Boys' School, Hatcham, Owen, Johnson Buildings, Ltd., New Cross.

¶London (Admiralty).— *Arbroath*, R.N.A.S., 62 Orlit houses, The Scottish Orlit Co., Ltd., 79, George-st., Edinburgh 2. *Portsmouth*, H.M. Dockyard, Thermal insulation of main workshop, L. Whittaker & Co. (London), Ltd., Chandos House, Buckingham-gate, London, S.W.1.

¶London (M.O.W.).—Contracts placed by M.O.W. for week ended October 30:—

London: Haverstock Hill School, N.W.3, Dining-room and scullery, Parsons Bros. & Jennings, Ltd., 314, High-rd., Tottenham, N.15; D.P.E.C., 163, Tower Bridge-rd., S.E., Alterations and adapts., W. & M. Negus, Station Works, King James-st., Southwark, S.E.1; Dean Bradley House, Horseferry-rd., S.W.1, Adapts., etc., J. M. (Contrs.), 127, Terminal House, Grosvenor-gdns., S.W.1; Natural History Museum, South Kensington, S.W., External painting and repairs, F. Troy & Co., Ltd., 131, Gt. Suffolk-st., S.E.1; Tithe Redemption Office, 33, Finsbury-sq., E.C.2, Internal decorations, C. & T. Painters, Ltd., Mordaunt-rd., Harlesden, N.W. *Berks*: Harwell School, Didcot, Temp. school bldgs., Knowles & Son (Oxford), Ltd., 36, Holywell-st., Oxford. *Ches.*: Chester-rd. Senior School, Birkenhead, Hutted accommodation, Cartwright Bros. (Little Sutton), Ltd., Little Sutton, Wirral. *Denbighshire*: Llay School, Kitchen and dining-room, John Hughes (Contrs.), Ltd., 12a, Holt-st., Wrexham. *Hampshire*: Engine Altitude Plant Bldg., Plant bldg., Lavender McMillan, Ltd., 54, Cheam Common-rd., Worcester Park, Surrey; Porchester-rd. Secondary School, Bournemouth, Temp. school bldg., Victor L. Young, 4a, Porchester-rd., Bournemouth. *Inverness-shire*: Lochmaddy, Telephone exchange and living accom., Ross & McKenzie, 28, James-st., Stornoway. *Lancs*: Sharp-st. Miners' Hostel, Walkden, Internal and external painting, G. A. Fryer & Sons, 164, Chorley New-rd., Horwick; Greenheys Webster-st., County Primary School, Manchester, Hutted accom., G. Fisher (Fallowfield), Ltd., Albany-rd., Chorlton-cum-Hardy, Manchester; Fairfield-rd. School, Droylsden, Kitchen and dining-room, James Ridyard & Sons, Ltd., Railway Saw Mills, Ashton-under-Lyne; Clitheroe Grammar School, Kitchen and dining-room, Paul Fairclough, Clive-st., Sawmills, Bolton; H.P.O., Spring-gdns., Manchester, Internal decorations, Worthington & Sons, 26, Gilda-Brook-rd., Eccles. *Perthshire*: Bridge of Earn Hospital, Internal and external painting, Imrie & Menzies, 60, George-st., Perth. *Worcs*: War Office, No. 7, Families' Camp, Jubilee-dr., Kidderminster, Internal decorations, Cornelius, Green & Porter (Hagley), Hagley-rd., Stourbridge. *Zetlandshire*: Fort Charlotte, Lerwick, Ministry of Food offices, Pearson & Fraser, 24, Market-st., Lerwick; Sandwick Public School, Dining-room and kitchen, Mr. T. B. Tonge, North End, Lerwick.

¶London (War Dept.).—Works contracts placed by War Dept. for week ended October 30:—

Northumberland: Building work, J. Roxby Surtees, Ltd., Blackhill, Co. Durham. *Yorks*: Hutting work, R. Blackett & Son, Ltd., Darlington. *Lancs*: Fencing work, Biddulph & Thrift, Wolverhampton. *Leics*: Miscellaneous work, J. H. Woodward & Co., Leamington Spa. *London Area*: Miscellaneous work, H. Goodsell, Maidstone. *Devon*: Miscellaneous work, G. Whale & Sons, East Looe, Cornwall.

Manchester.—Additions to Engineering Works, Victoria-st., Openshaw, for B. & S. Massey, Ltd.: *J. Gerrard & Sons, Ltd., Pendlebury-rd., Swinton, Manchester.

Manchester.—Houses at Cedric-rd., Crumpsall. Roberts & Roberts, architects, 40, King-st.: *Chas. Oldham, 33, Royle Green-rd., Northenden, Manchester.

Manchester.—Alterations to factory at Hood-st. and Cotton-st., Ancoats: *A. Cassel & Sons, Ltd., 1-11, Teneriffe-st., Broughton, Salford 7.

Manchester.—17 houses at Merston-dr., off Kingsway, East Didsbury. J. E. Kewell (F.), 7, Market-st., Altrincham, Ches: *Hope & Jones, Gateway Estate, Wilmslow-rd., East Didsbury, Manchester 20.

Manchester.—Works for T.C. Erection of Heaton Park Temporary Primary School: *J. Gefrard & Sons, Ltd., Swinton; 108 flats at Newall Green: *G. & J. Seddon, Little Hulton; houses at Woodhouse Park and Moss Nook: *W. J. Simms, Son & Cooke, Ltd., Nottingham (112); *Henry Boot & Sons, Ltd., Sheffield (154); *William Townson & Sons, Ltd., Bolton (100 Orlit). (Subject to M.H. approval.)

Middlesbrough.—30 houses for T.C.: *Middlesbrough and District Building Trades Association, £36,202.

Middlesbrough.—98 houses for T.C. J. A. Kenyon, B.E.: *J. Gilmore & Sons, Middlesbrough (50); *J. C. Watson, Stockton-on-Tees (28); *R. H. Bailey & Son, Middlesbrough (20).

Newcastle.—Reconstruction work at 416-420, West-rd., for Denton, Caterers: *H. Kindred, 371, West-rd., Newcastle.

North Kensington.—Block of flats at Rackham-st., for Kensington Housing Society, Ltd. Architects, Stewart & Hendry, 90, Fenchurch-st., E.C.3: *A. T. Rowley (London), Ltd., Cambridge Works, Lordship-la., Tottenham, N.

Norwood.—Proposed Physiotherapy treatment block at Norwood and District Hospital, Hermitage-rd., for Regional Hospital Board. Architect, Harold Cane (F.), Abbey Orchard-st., S.W.1: *J. & C. Bowyer, Haynes-la., S.E.19.

***Old Fletton.**—14 houses at Chapel-st. extension site, Stanground, for U.D.C. A. W. & H. J. Wilson (FF.), Cumbergate, Peterborough: *G. Matthews & Son, Eye, nr. Peterborough, £17,427.

Oldham.—10 houses, Penine-view estate: *Greenwoods Building Industries, Ltd., Salem Works, Lees-rd., Oldham.

Oldham.—Day nursery at Orme Mills, Waterhead, for Lancashire Cotton Corporation, Ltd., Blackfriars House, St. Mary's Parsonage, Manchester 3. Plans by Architects' Dept.: *James Hartley, Cobden-st., Chadderton, nr. Oldham.

Plymouth.—200 Easiform houses at Ernesettle, for B.C. Architect, E. G. Catchpole, City A.,

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Weston Lodge, Seymour-rd., Plymouth: *John Laing & Son, Ltd., Bunns-la., Mill Hill, N.W.7, £245,098.

Plymouth. — Rebuilding houses at Laira Bridge-rd., for B.C. Architect, E. C. Catchpole (A.), Weston Lodge, Seymour-rd., Plymouth: *F. J. Stanbury, Alexandra Works, Mutley, Plymouth, £7,841.

Pontefract.—Factory at Whitehouse Works, Ferrybridge, for Pollard's Bearings (Birmingham), Ltd. E. Gordon Crofts (L.), Market-pl.: *F. & G. Leach, Ltd., Portland-av., Park-la., Pontefract.

Ramsgate.—Houses and flats at Newington estate, for T.C. Unit No. 3a, eight flats: *J. B. Sharman and *D. T. Dorman & Co., £6,900; Unit No. 4c, 20 flats: *D. C. Heard & Co., Ltd., *J. Moody, *H. Newby & Sons, Ltd., *Tyler (Contractors), Ltd., and *S. W. Bushell, £17,250; Unit No. 5, 24: *E. W. Martin & Son, Ltd., *Home Bros., *H. Ratcliffe, *Grummant Bros., and *J. B. Sharman, £20,700; Unit No. 5, 24 houses: *Grummant Bros., *G. J. Attwood & Co., *D. T. Dorman & Co., *W. W. Martin, *Tyler (Contractors), Ltd., and *S. C. Ward, Ltd., £30,480; Unit No. 5, Erection of 26 houses: *Grummant Bros., *D. C. Heard & Co., *E. W. Martin & Son, Ltd., *Home Bros., *J. Moody, *H. Newby, & Sons, Ltd., and *S. W. Bushell, £33,020.

Ringwood and Fordingbridge.—Houses for R.D.C. Architect, Frank Andrews (L.), 45, High-st., Ringwood. Three pairs at Hurst-rd.: *S. M. Mulley, Ltd., Purewell Building Works, Christchurch; one pair at Minteys Farm, Rockbourne: *H. Willitts, Ashburn, Fordingbridge; two pairs at Bransgore: *W. J. Flower, 30, Osborn-rd., Winton, Bournemouth; two pairs at Merryweather Farm site: *H. Parker & Son, Fairlie Estate, Ringwood.

Sale.—Houses at Oaklea Farm estate, for T.C. E. B. Leakley, M.I.Mun.E., B.S.: *F. Entwistle & Co., Ltd., Kingsway, Davyhulme, Manchester; *P. Rowles & Sons, Ashfield-rd., Sale, Ches.

Shipston-on-Stour.—Two houses at Blackwell, for R.D.C.: ‡Williams & Wollett, £2,630 (subject to M.H. approval).

Stafford.—44 houses at Rising Brook estate, for T.C. T. H. Higson, B.S., Boro' Hall: *W. Whittingham, Ltd., Powlett-st., Stafford, £59,126.

***States of Guernsey.**—14 houses at Les Naftiauk Arsenal, St. Andrew's. G. Hegg, States E., States Office, Guernsey: *W. E. Hammond, 89, Village-rd., Alverstoke-rd., Gosport.

Stockport.—Dining-room and kitchen off Clifton-rd., Davenport, for Governors of Stockport Grammar School. Peirce & Son (L.), 30, St. Petersgate: *J. Foulkes & Son, Dicken-st., Offerton-la., Stockport.

Stockport.—Alterations and additions at Booth-st. Cleansing Depot, for T.C. S. Stephens (L.), 11, Greek-st.: *Schofield & Thompson, Ltd., Hartley-st., Oldham, £10,200.

Stourbridge.—156 houses at Norton estate, for T.C.: *Percy Cox, Quarry Bank, £57,685 (45); *Structo, Ltd., Birmingham, £43,076 (37); *Butler Bros. (Birmingham), Ltd., Birmingham, £43,860 (35); *The Leasowes Building Co., Ltd., Halesowen, £47,829 (39).

Stratford.—Factory, offices, etc., for E. Smulian & Co., Carpenters-rd. Architects, Charles Living & Sons, 233, Leytonstone-rd., Stratford, E.15: *Stork Construction Co., Ltd., 133, Sherbert-rd., Forest Gate, E.7.

Stretford.—32 flats at Moss Vale site, for B.C.: *D. Franklyn, Urmston, £35,453.

Tarvin.—Eight houses at Broxton and Waverton, for R.D.C. T. Pritchard, S., R.D.C. Offices, Westminster-bldgs., Newgate-st., Chester: *William Hughes, Holly Bush, Farndon, nr. Chester, £4,899 (4); *Lightfoot & Son, Sandy-la., Tarvin, nr. Chester, £5,228 (4).

Tupton.—18 houses at Wingfield-rd.: *Smith, Hanwell & Sons, Calver, £28,234.

***Tutbury.**—Two blocks of 4 houses at Beacon-rd., Rolleston, for R.D.C. R. S. Litherland (L.), 10, High-st., Burton-on-Trent: *L. C. Docksey, Park-st., Burton-on-Trent, £9,876.

Uttoxeter.—Eight houses at Marchington, for R.D.C. S. C. Drabble, S.: *O'Dair Bros., Ltd., Uttoxeter-rd., Tean, Stoke-on-Trent, £10,596.

Wanstead and Woodford.—48 flats at "The Hermitage" estate, Snaresbrook-rd., for B.C Tooley & Foster, architects, Midland Bank-chrs., Buckhurst Hill, Essex:

T. Bates & Son, Ltd., Harold Wood, Essex	£68,159
C. S. Foster & Sons, Loughton	65,190
F. Troy & Co., Ltd., S.E.1.	62,499
†F. J. Coxhead, Ltd., 43, Bulwer-rd., E.11	60,319

Watford.—Proposed vicarage, etc., for St. Albans Diocese. Architect, J. H. Leech, High Ridge, Kinsbourne Green, Harpenden, Herts: *Abbiss & Hale, Ltd., Mill End, Rickmansworth.

Whitby.—County primary school, for North Riding E.C. A. G. Henderson (F.), 196, West Regent-st., Glasgow C.2: *Jaram & Son, 20a, Gladstone-st., Scarborough, £48,250.

Woolwich.—Two blocks of six houses at Coldharbour estate, for B.C.: *Apprentice Master Scheme (Apprentice Masters, Halse & Sons, Ltd.), £18,690.

Workington.—102 "Easiform" houses at Westfield estate, for T.C. Handel Kay, M.I.Mun.E., B.S.: *John Laing & Son, Ltd., Dalston-rd., Carlisle, Cumberland, £128,709.

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